

COAL MINING

JULY, 1953

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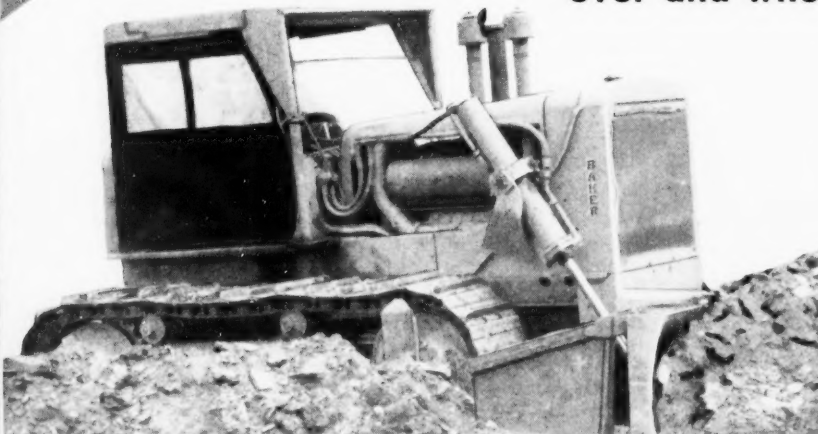
VOLUME 30, No. 7



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Your Euclid Distributor will provide a hauling production and cost estimate for your operation... there's no cost or obligation so get in touch with him soon. Let him show you how "Eucs" can cut your coal hauling costs.

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

▲ In the Pennsylvania anthracite field, Wadesville Production Company has used Rear-Dump "Eucs" of 22 to 34 ton capacity to move more than 17 million cu. yds. of overburden and nearly 2 million tons of coal since operations began in June of 1948. Performance has been so satisfactory that "Eucs" are standard hauling equipment on this big operation... 20 units are presently in use.

Truax-Traer Coal Company has used Bottom-Dump Euclid Coal Haulers at their Illinois operation since 1935. The Euclid fleet, 14 units of 20 ton capacity and six 25 ton "Eucs", delivers an average of 8500 tons of coal to the washing plant per eight hour day. High travel speed from pit to tipple on hauls up to 3½ miles and the long service life of the Euclids help to keep hauling costs at a minimum... every "Euc" purchased by the company is still in service! ▼



Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE



McCarthy drills

CUT DRILLING COSTS

BLAST HOLE DRILLS

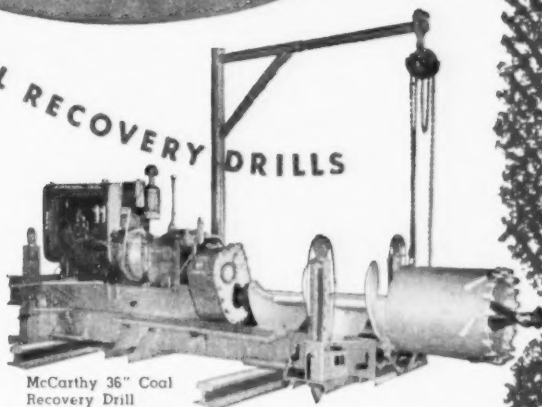
At Bessemer Limestone and Cement Co., Bessemer, Pa., one McCarthy Blast Hole Drill, like the one pictured below, averaged 90 ft. an hour, working through a hard blue shale facing 34 ft. deep. Holes were drilled on 18 ft. centers. Two men handled the whole job, including set-up and moving. Bessemer officials were so pleased with the performance of the McCarthy Drill that a second one was ordered and put to work in another section of their quarry. It, too, is breaking all previous records for fast, low-cost shot hole drilling.

**Heavy
Rugged
Powerful**

McCarthy
Model 106 Vertical Drill



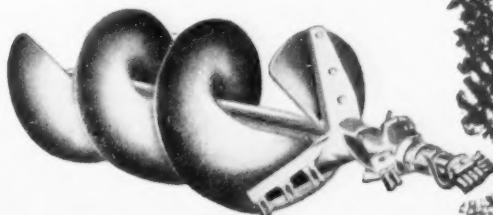
COAL RECOVERY DRILLS



McCarthy 36" Coal
Recovery Drill

Near Salineville, Ohio, a three-man crew, operating a McCarthy Coal Recovery Drill, similar to the one shown above, produced 90 tons of clean, high-grade and profitable coal in one eight-hour day. At Germano, Ohio, a three-man crew, using a 36" diameter auger section, produced 167 tons of coal in one eight-hour day!

Hydraulically controlled and operating on gasoline, diesel or electric power, rugged McCarthy Coal Recovery Drills produce coal at \$1.50 to \$2.00 a ton, including amortization of investment cost. You can select from four models . . . 20" to 24", 30" to 36", 42" and 48" diameters with 4-ft. to 24-ft. auger sections. Write Salem Tool direct and a distributor will call on you.



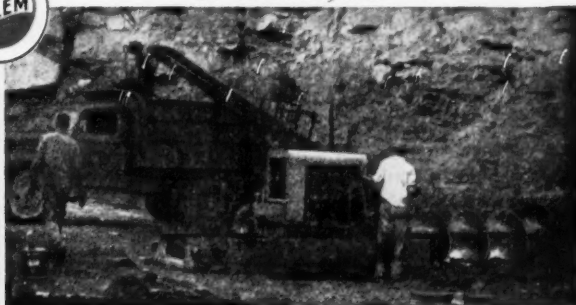
THE SALEM TOOL COMPANY

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Self-propelled high-wall Blast Hole Drill

24" Coal Recovery Drill



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"Excellent" *says J. Robert*

7 Tournapulls help strip 7,500,000 tons overburden

Contract stripping over 7,500,000 yards of overburden near Mt. Carmel, Pa., to uncover anthracite deposits, J. Robert Bazley, Pottsville, brought in 7 electric-control Tournapulls. Of these high-speed units, 5 were 14-yd. C Tournapulls . . . the other 2 were new 27½-yd. "A's".

Big "A's" complete 5000' cycle every 8 ¾ minutes

Loading tough hardpan, the "A's" got heaped loads of the high-void clay and rock in about a minute. The day pictures were taken, a quick freeze had

left the area cut up with frozen ruts and ridges, which slowed both haul and return. Yet, each of the "A's" regularly made a 5000' cycle every 8¾ minutes, completed 48 trips per 7-hour shift. Working 2 shifts per day, 5 days per week, combined production for the 2 big units has been 233 pay yds. per hour, according to contractor's records. "This LeTourneau equipment is satisfactory," says Owner J. Robert Bazley. "It has done an excellent job."

General Superintendent Harry H. Hughes declares, "Our LeTourneau

rigs have given satisfactory service on this and other jobs."

Prime-movers also operate rear-dumps

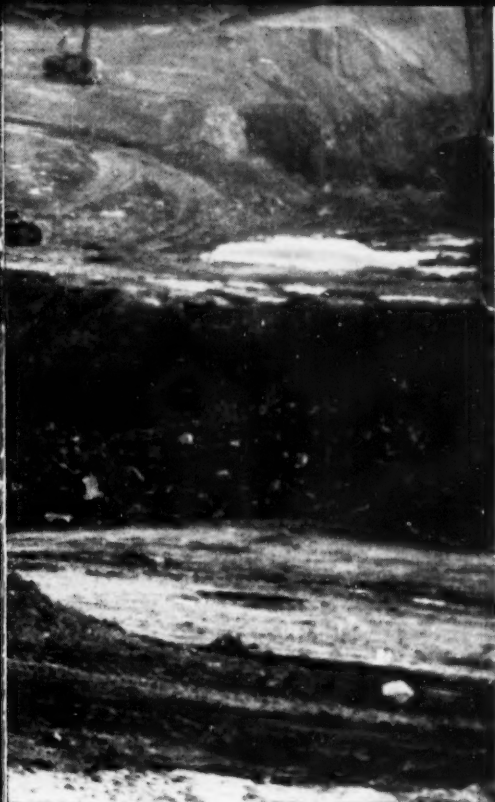
In addition to scraper work, the Bazley organization uses its electric-control LeTourneau prime-movers with rear-dump Tournarocker trailing units on rock work. These extra rear-dump bodies cost only about 25% of the cost of original unit, and are readily interchangeable with the scrapers. Prime-movers thus do *double duty* . . . working steadily month after month where needed most. As James R. Bazley, company Vice President, puts it, "Interchangeability of Scrapers and 'Rockers' permits us to use our Tournapull prime-movers the year

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◀ Stripping in pit began in April 1947, is expected to continue through 1955.

Pushed by a 167 hp tractor, big 27 1/2-yd. A Tournapull picks up heaped load of tough hardpan, in spite of 38% voids in rocky material. In background, second Tournapull turns 90° to move into loading position.

▲ Tournapull returns to stripping pit down 8% grade. Top speed for 27 1/2-yd. rig is 36.5 mph. Average speed on this 5000' cycle was 12 mph. Same "A" prime-mover interchanges on a 35 or 50-ton Rear-Dump or Bottom-Dump. "C" prime-mover powers 19-ton Scraper, Rear-Dump, and Bottom-Dump.

Bazley

around. By switching the trailing units, we adapt our equipment to the prevailing conditions for the most economical stripping."

Get facts for your work

Whenever you have dirt, shovel-rock, sand, coal, or other bulk materials to move, it will pay you to check the fast, low-cost work-capacity of LeTourneau equipment. Ask your Distributor for all the facts.

9 to 50-ton sizes

Tournapulls with interchangeable Scrapers and Rear-Dumps are now available in four sizes . . . 9, 18, 35 and 50 tons. Bottom-dump units of 18 to 50-ton capacities are also available for use behind same prime-movers.



Tournapull, Tournarocker—Trademark Reg. U. S. Pat. Off. PAP-381-CM-w

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Do You Know?

● Everybody who has been on active military duty since June, 1951 can be called back to uniform in an emergency or a war no matter how essential his job is.

This would seriously disrupt the war-making industrial potential of the nation. More than 25% of all engineers and scientists now engaged in research and development programs in the country could be placed in uniform by the Defense Department, the Engineering Manpower Commission declared here today.

Dr. Thomas H. Chilton, chairman of the commission, a body set up by the major engineering societies, told newsmen that these are the very people on whom we depend for our continued technological and economic superiority. He said that "this situation is the logical result of the operation of our military service laws as they are now written."

Public Law 51, passed in June, 1951, creates a compulsory reserve into which go all those leaving the service.

This compulsory reserve will shortly exceed 10,000,000. Every year it includes more people who are vital to the defense production economy, Dr. Chilton pointed out.

"The recalling of reservists to active duty in time of emergency or war rests solely in the hands of the Department of Defense. This situation," Dr. Chilton cautioned, "can create chaos in the industrial support of mobilization."

Dr. Chilton said that great industrial dislocation was caused at the start of the Korean Action by indiscriminate call up of reservists. Many were members of scientific research teams or were engineers vital to production of war goods.

Dr. Chilton and representatives of other groups at the press conference strongly supported a bill which would set up a National Manpower Board to control recall of reservists in time of war. The Board would be in the President's office and thus would be able to control Defense Department reservist call ups.

● The gastronomic review of the researches conducted by the U. S. Department of Agriculture, served to President Eisenhower at the Department's Agricultural Research Center at nearby Beltsville, Md., included 23 items.

The menu started with orange juice from an orange juice powder that may be stored without refrigeration and ended with salted pecans from the new Barton variety that are high-yielding, thin-shelled, with superior keeping qualities.

Along with such solid food as prime ribs of beef, cold sliced baked ham, glazed sweet potatoes, peas, mushrooms, asparagus, potato salad and strawberry pie (all from research-developed varieties) the menu offered the following unusual tidbits:

Whole-wheat rolls made more nourishing by adding protein and iron in the

● The Operators Association of Williamson Field, Williamson, W. Va., has announced the election of J. D. McLaughlin, President, New Alma Coal Co., at President of the Association to fill the unexpired term of J. M. Tulley, President, Crystal Block Coal and Coke Co., resigned. Also announced was the election of C. W. French, President, Peter White Coal Co. and Home Creek Smokeless Coal Co., as Vice President to fill the unexpired term of Harry S. Gay, deceased.

● W. W. Goldsmith, Elk Horn Coal Corporation, was elected President of the Big Sandy-Elkhorn Coal Operators Association at the group's annual meeting held recently in Lexington, Ky. New directors elected included Noah Howard, Elk Horn Coal Corporation, and George E. Evans, Jr., of the Evans Elkhorn Coal Co. Sam Cassidy, Vice President, Pittsburgh Consolidation Coal Co., is the retiring President of the Association.

● William F. Jordan, former Assistant Sales Manager, Eastern Division Caterpillar Tractor Co., has been named Assistant Sales Manager of the Cleveland office of Ohio Machinery Co.

In making the announcement, Vice President Thomas H. Taylor stated that Bill would also head up a new used equipment merchandising program at Ohio Machinery Co.

Although only 34, Bill Jordan has

form of non-fat dry milk and molasses.

Whey cheese spread from proteins recovered from whey after cheese manufacture, developed to give a new use for milk proteins now largely wasted or fed to animals.

Swiss cheese from pasteurized milk which yields a safer product.

Honey-fruit spread, now being made commercially by a process developed by Department researchers, which combines fruit juice and honey; special comb honey from improved honeybees; and crystallized honey, the result of controlled granulation which gives fine, smooth crystals.

The hot-weather candy on the menu did not melt on the warm day because it contains a high-melting fat which Department researchers found would make candies that withstand high tropical temperatures without softening.

Here and There in the Coal Industry

already had 15 years experience with heavy equipment. His first contact was summer work in his home state of Indiana.

Bill entered Purdue in 1937 but did not receive his mechanical engineering degree until June of 1947. Uncle Sam's Navy had something to say about the delay. Bill served five years as a fighter pilot aboard carriers in the South Pacific. He holds the rank of Lieutenant Commander.

After graduation, Bill advanced rapidly at Caterpillar Tractor Co. He completed the college graduate training program and served as district representative in Michigan, Ohio, West Virginia and Western Pennsylvania before becoming Assistant Eastern Division Sales Manager.

Bill, his wife and son, Stephan 2½, now make their home in Parma Heights, Ohio.

● CLEVELAND, July 14 — Executives of coal, railroad, and equipment companies meeting at the Statler Hotel today heard about aggressive action being taken through industry-sponsored research to build coal markets.

Fred McConnell, president of the Enos Coal Mining Company, was chairman of the meeting, one of a series being held in major coal producing areas throughout the country.

Dr. A. A. Potter, president of Bituminous Coal Research, Inc., the national research agency of the bituminous coal industry and Dr. H. J. Rose, vice president and director of research, reviewed industry progress and cited the great opportunities for future progress through research.

Research, they said, is advancing coal's markets by improving equipment and methods for more satisfactory industrial use of coal, the production of convenient, clean, and more efficient residential heating equipment, the development of improved coal-burning locomotives, the development of continuous mining machines and related equipment to reduce the cost of coal to consumers, and fundamental research on coal and its utilization.

to keep



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at a maximum...

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able Driver Contracting Co.
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machine life over a period of many years.

A comfortable seat and convenient controls with hydraulic-booster-assisted steering and a multitude of safety devices enable operators to keep up with the Cat DW10's exceptional record for high "going time".

You can test the DW10's endurance on your job. Call on your dealer for details — his name is on the preceding and following pages!

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Thousands of Caterpillar Motor Graders have been put to work since the first engine-over-axle machine was introduced by Caterpillar in 1931 . . . and 99% of *all* these Cat Graders are still maintaining a high "going time" ratio for owners, producing efficiently and profitably.

The life expectancy of these rugged graders far exceeds that of ordinary machines. Quality construction by *one* manufacturer, balanced

design, and prompt dealer service give the Cat Diesel Motor Grader the ability to do a wider range of work at lower cost throughout a longer life time.

Long life can only be shown by age records of machines still in use, but we can prove the Cat Motor Grader's ability to do your everyday work more efficiently *with a demonstration* on your job. Call for a date!



Loading out chunks of concrete keeps this Cat HT4 busy. Lift arms are cross-braced with a box-section for rigidity. Main frame is all-welded unit, mounted directly on track frames.

extra Going Time with the **CAT* HT4 SHOVEL**

There's always work for the versatile Caterpillar* HT4 Shovel — digging, loading, grading, landscaping, stockpiling, clearing, any material handling job. This unlimited versatility means a fuller work schedule for you. You'll have more "going time", earn greater profits. The husky tractor-shovel has 12,380 pounds of pushing power to heap 1-1/4 cubic yard loads

of any material — concrete, clay, caliche, coal, rock, sand, snow — into its heavy-duty bucket. Compact and low, the HT4 can go anywhere a man can walk without ducking. Built-in stamina keeps "going time" and production at a steady peak. We can show you why. Ask for a demonstration of a multi-purpose Caterpillar HT4 Shovel on your job . . . today!



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COAL MINING

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No. 7

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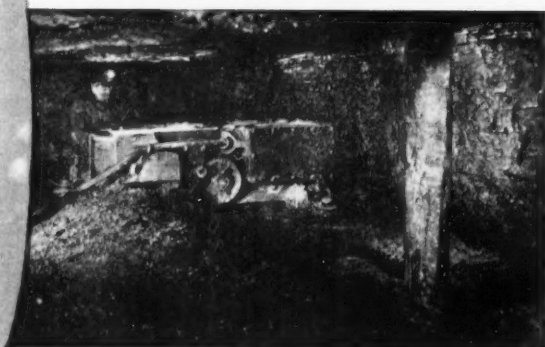
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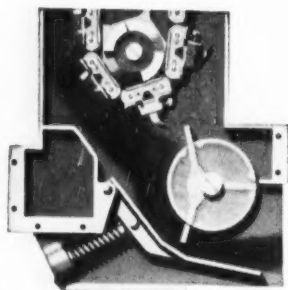
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Shortwall Cutter with slack-handling device



SLACK HANDLING DEVICE

With this unit, the cuttings are automatically removed and stowed in a slack pile to the right and rear of the machine. No further cleaning is necessary before shooting.

SHORTWALL CUTTERS

Jeffrey Shortwall Cutters include all the modern features essential to long life, rough usage, high production and low cost operation.

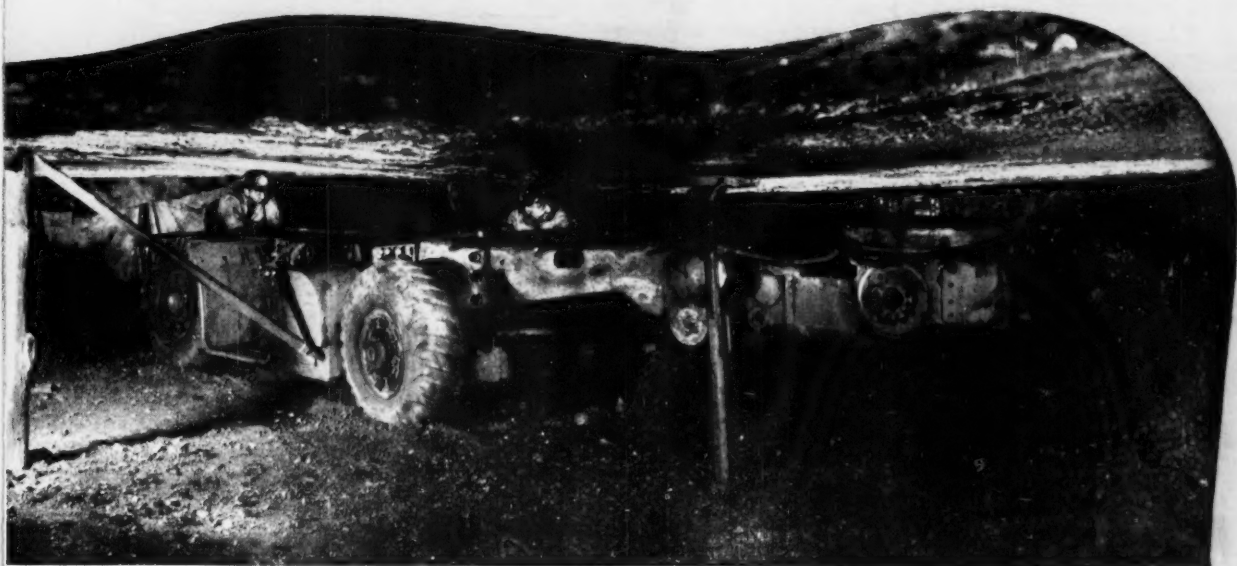
The records of thousands of these machines in constant year-after-year service give evidence of their sturdy construction and dependable low-cost performance.

Movement of these machines is controlled by two power-driven wire rope drums with independent controls. The clutches controlling these drums are easily operated to give quick response to adjustments in position of machine whether in the low-feed speed or high-handling speed.

Coal Cutters to meet individual needs are backed by a competent engineering staff of long experience and every manufacturing facility. Contact a Jeffrey engineer on the unit best suited to your operation.

of coal cutting requirements

CUTTING MACHINES



UNIVERSAL CUTTING MACHINES

Probably the most popular feature of this Jeffrey Type 70-UR Universal Cutter is its all-around utility. Its cutter bar can be completely rotated in either direction and positioned to make any kind of a cut any place in the seam. From one position, it can make a 30-foot horizontal cut (with a 9-foot cutter bar) or a shearing cut 5 foot, 5 inches on either side of the machine's center line. Maximum top cutting height of a standard machine is 7 foot,

9 inches, but can be furnished to make top cuts up to 13 feet.

The machine illustrated is mounted on large pneumatic tires and equipped with hydraulic steering to facilitate maneuverability regardless of floor conditions.

Jeffrey Universal Cutting Machines are also available with crawlers and in track-type models. Consult a Jeffrey engineer on units best suited to your specific needs.

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Material Handling,
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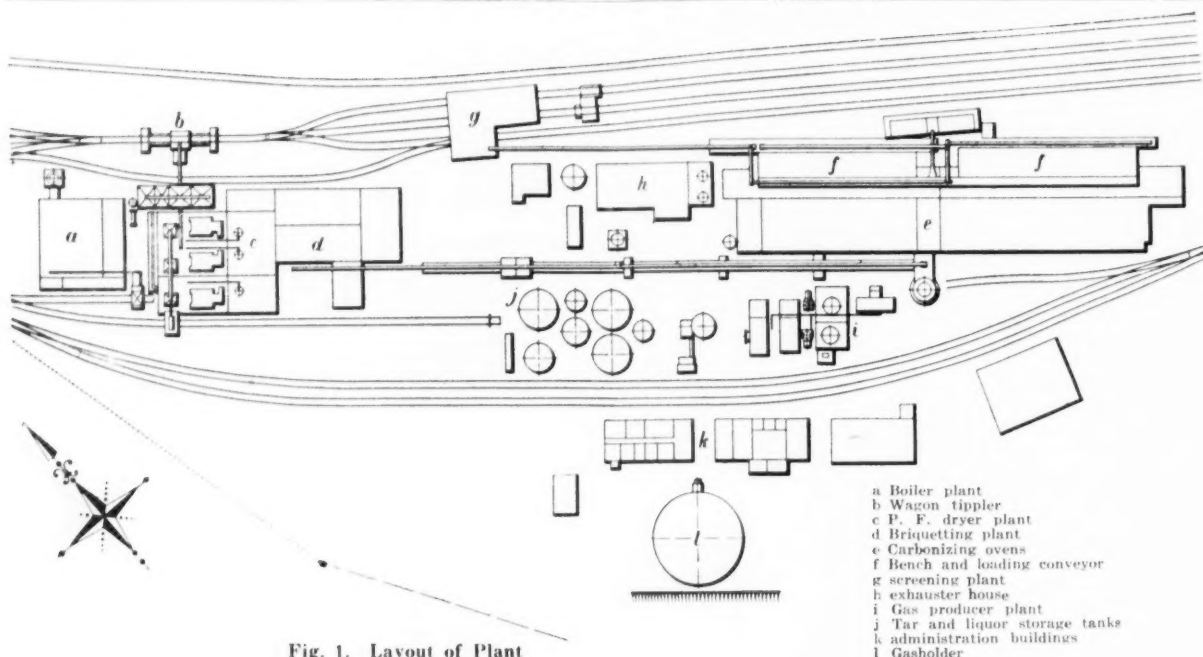


Fig. 1. Layout of Plant

- a Boiler plant
- b Wagon tippler
- c P. F. dryer plant
- d Briquetting plant
- e Carbonizing ovens
- f Bench and loading conveyor
- g screening plant
- h exhauster house
- i Gas producer plant
- j Tar and liquor storage tanks
- k administration buildings
- l Gasholder

Anthracite Fines Transformed Into Top-Grade Domestic Fuel At Aberam, England

By a Special Correspondent

The South Wales Division of the National Coal Board, London, England, has put a most remarkable plant into operation, now producing over 300,000 tons of "Phurnacite" annually, and it is claimed that it is the only plant of its type in operation anywhere in the world. By using fine coal for the production of carbonized briquettes of oval shape, the process used seems to offer an attractive means for the American and Canadian coal mines,

confronted with the ever present problem of utilizing "fines," which are otherwise difficult to sell. The following excerpt has been prepared with permission of "Coke and Gas," London which periodical has placed the line sketches at the disposal of the writer for reproduction. Planning of the scheme, which is part of the general development of the nationalized coal and coke industry in England was carried out by the Divisional Carbon-

ization Management of the National Coal Board, and was built by using direct labor, using the plant staff and additional workmen when necessary.

The domestic fuel Phurnacite has been on the market in England since about 1942 and has proved itself to be a sound fuel of high quality. Phurnacite is the trade-name of a carbonized ovoid briquette which measures about 45 x 38 x 28 mm. and weighs from 33 to 35 grams. The ovoids are uniform in size, extremely hard, and quite difficult to break, they are accordingly easy to handle in storage, almost dust-free, and reach the combustion appliance with practically no degeneration having taken place. They are intended specifically to be used as a smokeless-fuel in closed-types of domestic appliances (such as heat storage cookers, domestic boilers, etc.), and are, therefore, a competitive fuel in the graded-anthracite class.

The plant draws its coal, in the form of washed duff and fines, from the collieries in the neighborhood. Pitch, is the only other raw material used in the manufacturing

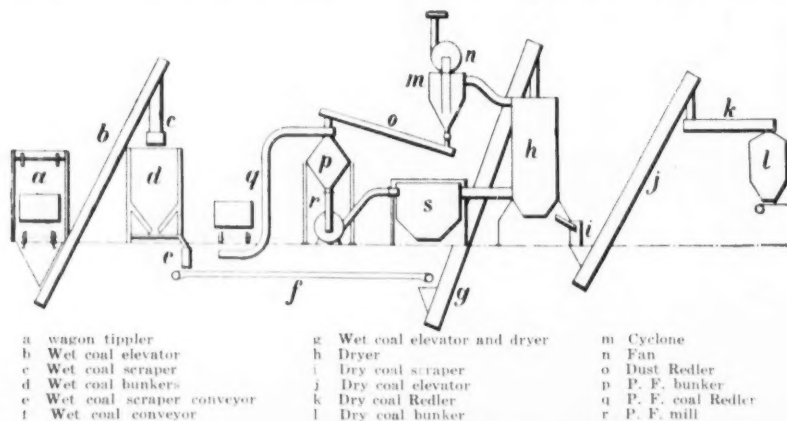


Fig. 2 Coal Drying Section—Flow Diagram

- a wagon tippler
- b Wet coal elevator
- c Wet coal scraper
- d Wet coal bunkers
- e Wet coal scraper conveyor
- f Wet coal conveyor
- g Wet coal elevator and dryer
- h Dryer
- i Dry coal scraper
- j Dry coal elevator
- k Dry coal Redler
- l Dry coal bunker
- m Cyclone
- n Fan
- o Dust Redler
- p P. F. bunker
- q P. F. coal Redler
- r P. F. mill
- s Furnace

process, and this process consists of briquetting the coals and pitch and carbonizing the resulting ovoids. The products made are: Grade A Phurnacite, Phurnacite "splits" (i. e. ovoids which part along the major axis into halves), and broken Phurnacite. Tar and gas are also produced in byproducts. The portion of Grade A Phurnacite is very high, being well in excess of 90 per cent of the output.

Fig. 1 shows the layout of the plant, the layout consisting of the following sections: (1) Coal handling and drying plant. (2) Briquetting plant. (3) Carbonizing plant. (4) Phurnacite screening plant. (5) Byproduct plant.

Coal Handling and Drying Plant

Coal is brought in by rail, mainly from the neighboring colliery washeries, and the wagons pass through a double-ended wagon tippler which is capable of handling wagons up to 20 tons capacity and is powered by one 15 hp motor. The coal having been discharged into a concrete hopper, it passes onto a feed-table and to a wet-coal elevator of 60 tons per hour capacity, and this elevator discharges into a 24" x 6" scraper at the top of four concrete surge bunkers. Three of these bunkers each have a capacity of 100 tons and one of 60 tons—the total being equal to the requirements of just over one shift's op-

eration. Coal is taken from the base of the bunkers by four feed-tables and these discharge on to a 24" scraper conveyor which feeds on to three separate conveyors (two 24" and one 18"). These conveyors feed separate elevators to the coal dryers.

The capacity of each unit in the dryer section is 25 tons per hour and two units are normally in operation with a third as standby. The dryers are vertical steel shells about 7' 9" diameter x 32' high, and in the center of each, a shaft, with 42 ploughs arranged horizontally, rotates at $5\frac{1}{4}$ rpm by means of an 8 hp motor. Inside the shell is placed a series of rings, and the rings are staggered so that the coal is wiped off the upper ring to fall to the ring below, where it remains for one revolution of the arm before passing down to the next ring, and so on. In all, there are seven

passes of six stops each (four passes from the outside of the shell inwards towards the shaft and three outwards from the shaft), and the coal then falls on to a revolving table, built on the center-shaft, where it is ploughed off to the discharge.

For each dryer the source of heat is a pulverized-fuel furnace which is about 14' long x 8' wide x 9 to 14' deep; this furnace is fed by an International Combustion Impax Mill of about 10 cwt-per-hour capacity, and oil-burning equipment is provided for lighting up. The furnace temperature is maintained at about 1,000°C and, by means of an adjustable air slide, this is let down according to the dryer requirements—so that the inlet dryer temperature lies between 500 and

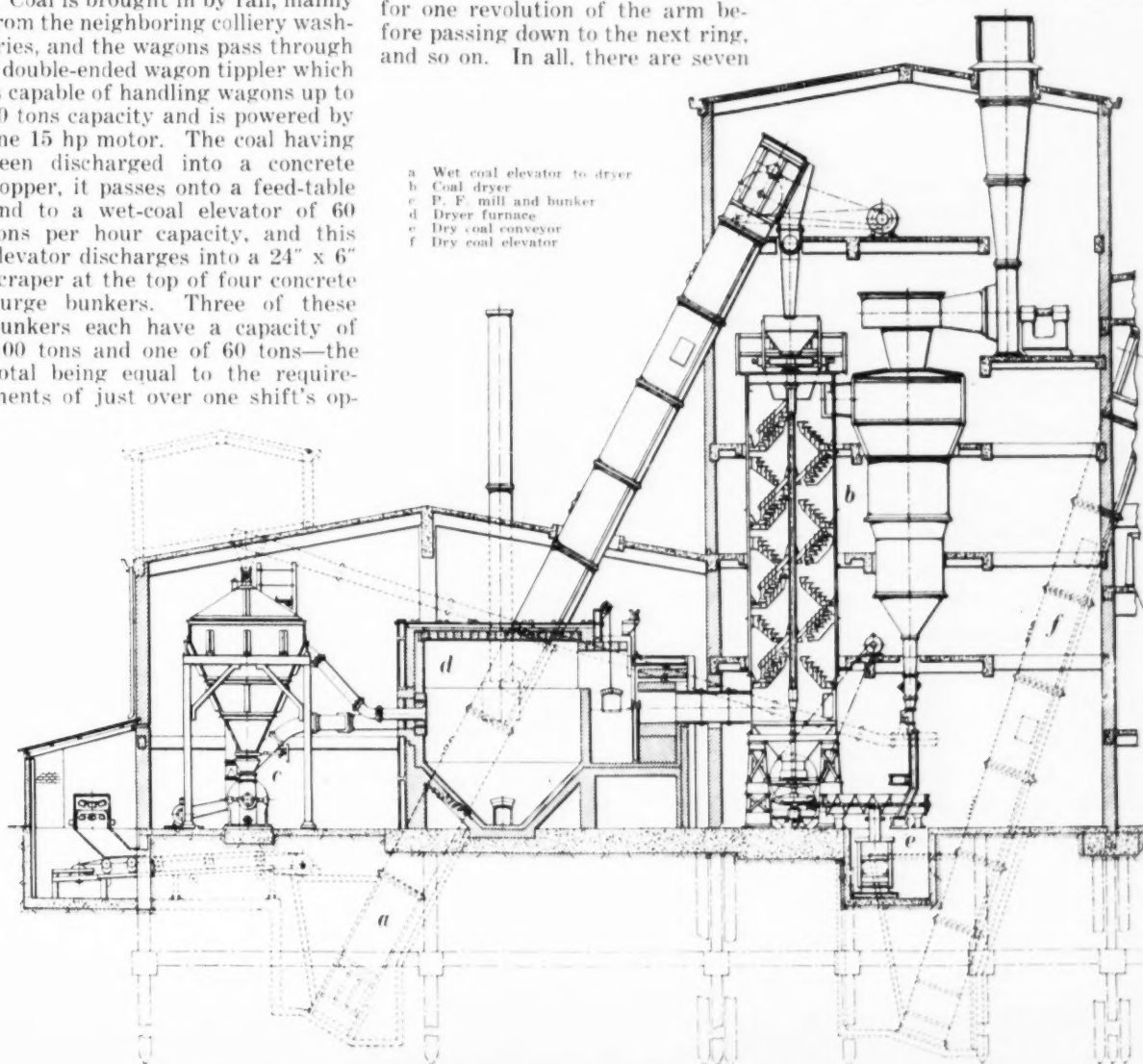


Fig. 3. Cross-section through Coal Dryers and Briquetting Plant—left section.

600°C—by admitting air between the exit combustion chamber and inlet dryer.

The gases enter the base of the dryer shell, pass upwards in counter-current to the descending coal, leaving the dryer at the top and pass into a dust cyclone, pass through the fan maintaining the plant under suction and, finally, through the stack and out to atmosphere. Dust from the cyclone is returned, via 5" Redler conveyors, to the pulverized-fuel bunker located over the pulverized-fuel mill, and the coal supply to this bunker can also be augmented by bringing in outside coal by means of a 7" Redler elevator feeding all three bunkers.

The fans deal with the hot gases at the rate of 32,000 cu. ft. per min. On the two dryers originally provided, the cyclones are 13'2" diameter and the fans absorb 40 hp. The cyclones, however, were not de-

signed to deal with the fine dust from the high proportion of froth-flotation coal used, and are not efficient dust catchers, on the third unit, therefore, the single 13'2" cyclones have been replaced by two Fraser and Chalmers Micron Precipitators of 3'6" diameter. The reduction in diameter and consequent increase in speed of the gases are reflected by an increase in the fan horsepower to 110. Micron precipitators are now also being substituted for the original cyclones.

The dry coal is discharged from the dryer base into a sealed scraper conveyor, or alternately, to a 15" Redler conveyor (provided for the extension to the plant), both of which have a capacity of 60 tons per hour. The two conveyors feed into the sealed boots of either of two 60 tons per hour elevators, and thence the coal is carried through a sealed 15" Redler conveyor into three 15-ton dry coal bunkers which correspond with the three briquetting presses. The whole arrangement from the dryer discharge to the bunkers is kept under suction by a fan to minimize dust discharge, the fan finally drawing the air through a Fraser and Chalmers Micron Precipitator before discharging to atmosphere. The flow

of materials in this part of the plant can be followed by reference to the flow diagram, Fig. 2, and the relation of the various parts of the plant to each other by reference to the cross section drawing, Fig. 3 and 3A.

Pitch-Handling Plant.

Pitch arrives in rail wagons and is unloaded by hand—either into stock or direct into one (or both) of two Yeadon pitch crackers. The crackers reduce the size of the pitch to about $\frac{3}{4}$ " cube and then discharge to duplicate elevators of 7 tons per hour capacity. These in bunkers, from the base of which a 14" belt feeds into a Carr type of disintegrator where the pitch is reduced in size to between $\frac{1}{4}$ " and $\frac{1}{8}$ ". The disintegrator discharges to another elevator of 7 tons per hour which carries the pitch to a surge bunker of 6-ton capacity, and from this bunker a feed-table and two 14" belts deliver the material into three feed hoppers—which correspond with the three 15-ton dry coal hoppers. From the feed hopper, measuring belts feed into the briquetting plant.

Briquetting Plant.

The flow diagram for the briquetting section is shown in Fig.

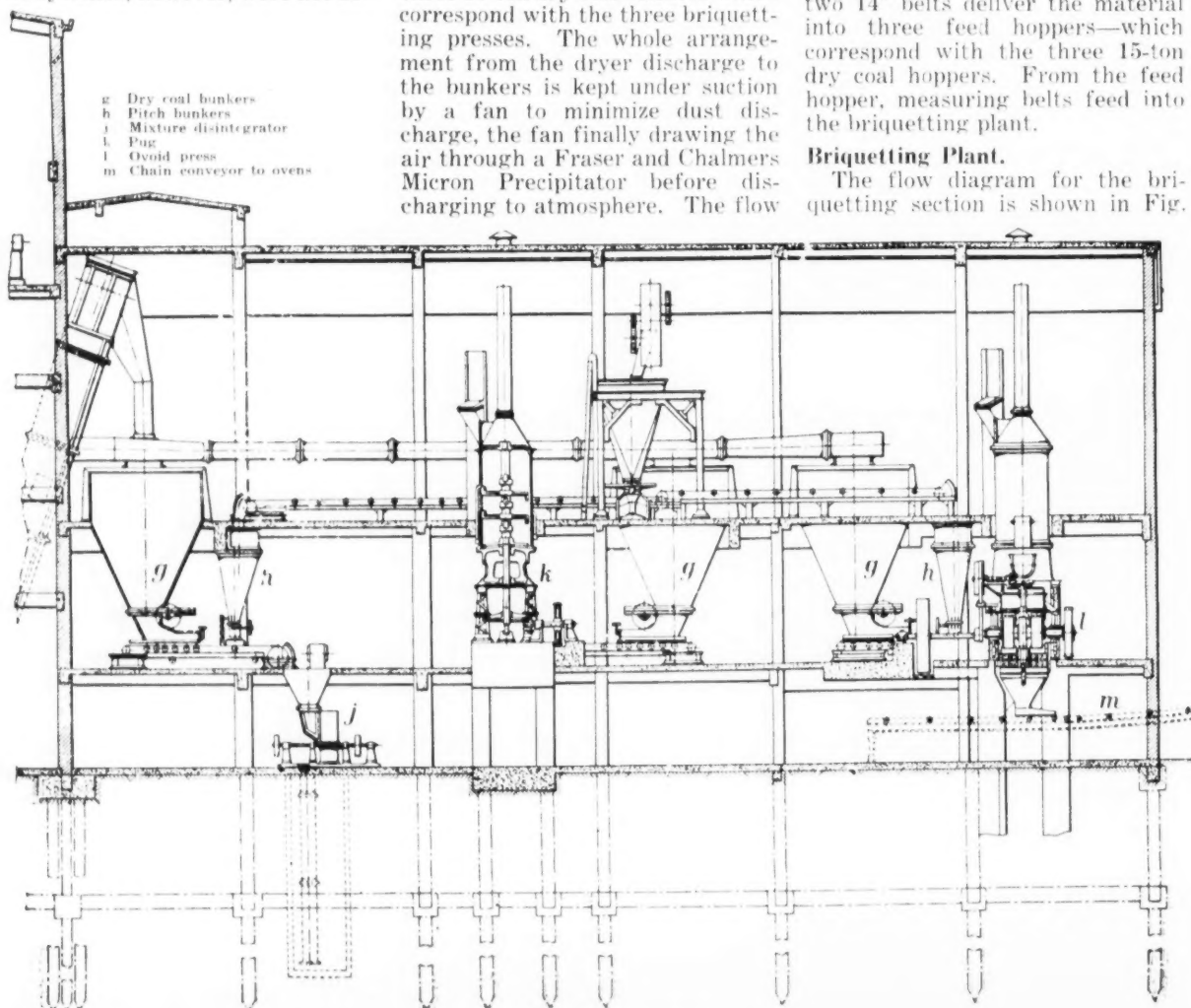


Fig. 3-A. Right section.

4. Commencing at the three dry-coal and three pitch hoppers, the briquetting plant is arranged as three independent units. Each unit is of 25 tons per hour capacity, and two units, normally operate with the third as a standby. Measuring belts 24" wide are fed from the three 15-ton dry coal hoppers, and the 14" pitch-measuring belts discharge to these. The resulting mixture is then passed through disintegrators.

The finely crushed mixture is elevated and discharged into the pug, which is a vertical vessel about 8' high x 4'6" diameter and contains five sets of arms attached to a vertical shaft turning at 24 rpm. Superheated steam at about 450°F is introduced radially into the vessel from an outside manifold, and this raises the temperature of the mixture to one exceeding the flow-point of the pitch. The heated mixture is then delivered by a cooling conveyor to the press pan which feeds a roll press. The rolls are arranged in pairs on two shafts with a central gear between and are driven at 11¼ fpm. Each roll is 24" diameter x 17" wide and has 429 cups cut into its circumference; the shafts are 8" diameter and are located in bronze-bushed water-cooled bearings at fixed centers. Each set of roll tyres produces about 80,000 tons of ovoids before the "land" (i.e., the metal ridge between the cup profiles) virtually disappears. When this happens the worn tyres are heated, removed from the centers, and a new set of tyres is shrunk on—this having to be done with accuracy. The presses are driven by motors of 100 hp.

The raw ovoids from the press fall on to a bar type of shaker screen, which removes some of the fins, and then on to a 42" chain conveyor belt on which the ovoids are cooled. If the ovoids are not up to the standard required, the delivery chute can be reversed so that the rejects drop on to a fines and rejects conveyor, situated below the shaker-screen, and this returns the product to the mixture disintegrator for recycling.

A chain belt receives the raw ovoids from all the presses and delivers them to a rotating Trommel screen by which the fins from the ovoids are removed. The fins are recycled and the finished raw ovoids delivered to the bunkers, situated above the ovens, by a 26" belt conveyor which delivers on to

two travelling shuttle belts. The overhead bunkers are arranged into vertical compartments corresponding with the separate ovens, and each compartment holds about 2½ tons—equal to approximately one oven charge. Since the oven carbonizing time is about four hours this is equivalent to about four hours' storage; consequently any breakdown in the briquetting or coal-handling sections of the plant which exceeds four hours will stop the ovens. It is for this reason that a standby gas producer is kept permanently warm so that it can be available for maintaining the temperature in the ovens should any emergency arise.

Ovens.

The ovens consist of two batteries of 40 built to the Distcoke Company's design and are of the recuperative type, heated with recycled oven gas. They have parallel walls, vertical flues, and the oven floors are inclined to the horizontal. In each battery the 40 ovens are located between heavy reinforced concrete and buttresses, and the ovens are subdivided into five groups of eight, each group being separated by brick buttresses. The raw ovoids are charged in at the top of each oven and at the completion of the carbonizing time, the bottom door is removed and the red hot ovoids are discharged down the slope into a quenching car. To charge the ovens, a transfer car (Fig. 4) is run into position between the particular block of eight ovens to be charged and the bunkers, and from each oven the cast-iron lid is removed and the ovoids are poured into the oven. A cross section through the ovens is shown in Fig. 5.

The ovens are heated by gas burning upwards in eight vertical flues, the waste gas collects in a common top flue before passing downwards in a ninth vertical flue to the recuperators, where it makes two horizontal passes between the slotted bricks before going to the chimney flue. The incoming air makes a vertical pass upwards and is then distributed by an inclined channel to the eight air points at the base of the vertical flues; here it meets the gas introduced into an inclined gas gun from the oven sides and then flows through fire-clay nozzles into the separate vertical flues.

Below the air-distribution flue,

the oven structure is mainly of rectangular and arch bricks (except for the special, slotted recuperator bricks), and above the air-flue level tongued-and-grooved shapes are used. The rectangular bricks are of first quality fireclay and the shapes of semisilica (80-82 per cent SiO₂). The ovens are braced with vertical backstays consisting of two 7" x 3" channels, and five sets of 13" x 5" double rolled steel joist horizontal backstays fastened together by 2½" diameter tie rods, brace each block of eight ovens. The overhead bunkers and roof are supported independently of the oven structure by heavy built up columns; these consist of 20" x 6¼" rolled steel joists with two 9" x 3" channels.

Special arrangements are installed to deal with the gases emitted during charging operations. The gases rise through short cast-iron ascension pipes, rectangular in cross section, 9" x 22", and about 36" high. These, in two groups of four, feed into horizontal milled-steel box mains which are cooled by liquid sprays. The gases then pass via two liquid-sealed cast-iron pipes with removable caps into either of the following: (a) a single "D" section main 2'8" wide and having a 22" diameter outlet corresponding to each block of eight ovens, and then into a common foul-gas main leading to the by-product plant; or (b) a smaller "D" main 2'8" wide and with a 14" outlet, and into a common 18" main which connects to all five blocks. This main leads to a smoke washer 32' high x 10' diameter in which the gas emitted during charging operations is washed with recirculated liquor—in order to condense the pitch vapors—before it is discharged to atmosphere. For the purpose of drawing the gases from the ovens during charging operations two "smoke exhausters" are provided, each consisting of a Bryan Donkin single stage centrifugal fan having a capacity of 160,000 cu. ft. per hour and driven by an 18 hp motor. After the lids have been replaced and the ovens closed, the "D" mains are changed over, and the oven gases pass through the normal by-product plant system.

Each oven holds approximately 2.3 tons of raw ovoids—i.e., for a block of eight ovens about 18 tons is charged at a time—and for the two batteries the throughput is of the order of 1,000 tons of raw ovoids a day. The ovens are closed

at the bottom by 3'8" high self-sealing doors, these doors being of the conventional coke-oven design with two swinging lathes engaging in hooks on cast iron frames. Ovens are discharged in groups of eight by a unique combination of door extractor, quenching car, and water tank. The quenching car consists of a travelling water tank holding about 23 tons of water and having a sloping bottom, so that the ovoids run out of the ovens and into the water. The water is drained off after the quenching operation and the ovoids are then discharged on to a sloping bench. The door extractor is mounted on top of the tank and, after the latches have been loosened, withdraws the eight doors simultaneously, for the lifting motion a motor of 5 hp is provided, and for withdrawing and replacing, one of 10 hp. The red-hot ovoids having been discharged into the tank, the greater part of the steam given off in the quenching process escapes through a rectangular stack which is placed at the end opposite to the driver's cabin. On the discharge side of the car are located six discharge doors and chutes together with grids; on the lifting of the doors the water flows through the grids into a large gully, located along the quenching car track, and is collected in breeze ponds; the ovoids run over the grids on to a loading bench which runs the whole length of the battery and slopes downward for a distance of 25'.

The quenching cars (one for each battery) run on twin bogies on standard gauge track laid on a reinforced concrete gantry, and each car is driven by a 30 hp motor. Water connections for filling the car are arranged from an 8" water main at each oven group.

Phurnacite Screens.

The loading bench for each battery of ovens is 125' long and is provided with 33 gates for loading on to a conveyor belt which runs in a reinforced concrete gully and is fed from the bench lip by overhanging cast iron plates. The main belt to the screens is 32" wide, is driven by an 8 hp motor through worm reduction gear, and rises to the main screen house at an angle of 13°. This angle is the maximum permissible since at any steeper angle the ovoids would roll backwards on the belt.

The screens consist of two rows of 14' long double-deck, Interna-

tional Ty-Rock Screens in series, the primary screens being 4' wide and the secondary screen being 5'. The top mesh of the primary screens has 34 mm. holes which take out the broken Phurnacite, while that of the secondary screens consists of bars placed longitudinally 16 mm. apart to remove the "splits"—i.e. full size ovoids which have broken in half over their length. The lower deck screens out breeze and peas below 16 mm. Each screen is driven through vee ropes by a 10 hp motor. Boon loaders are provided both for Grade A Phurnacite from the top deck and broken Phurnacite and "splits" from the second deck, and these are driven by 3 hp motors and have a 3 hp electric hoists for raising and lowering. The proportion of broken Phurnacite and "splits" is very low. Breeze and peas are retained in bunkers below the screens for wagon loading before being recycled. A weight-bridge with two Avery-50-ton visual scale, automatic weighers are incorporated at the end of the boom-loader structure.

Byproduct Plant.

The gases released from the ovens, once the charging operations have been completed, pass into liquor sprayed "D" mains corresponding to each block of eight ovens, and then into a common foul-gas main. At this stage the gases are saturated with tar, etc., and the tar and liquor are trapped off in a rectangular hopper-bottomed catch tank about 14' long x 6' wide x 6' deep, from which they are run to one (or both) of two tar and liquor separating tanks. The gases, while still hot, are then passed through a Simon-Carbes electro-detarrer and then through a direct gas cooler 60' 60' high x 7' diameter before they are passed into one of two British Thomson-Houston exhausters. These exhausters are electrically driven through 1,450 8,000

rpm increasing gears by variable speed 100 hp flameproof motors and are controlled by an Askania regulator operating on the liquid speed controller to give constant suction through speed variation. This arrangement is sensitive and works very well in conjunction with an Askania regulator situated on the oven foul-gas main. Since the ovens are charged in blocks of eight, fluctuations in gas volume are wide; there is a sharp "kick" in the flowmeter chart every time an oven block is taken off the main and a fairly rapid building up as the gas emission increases from the newly charged block.

From the exhausters the gases pass through an ammonia and naphthalene washer. This is a large cast-iron, seven-stage bell washer, of about 14' diameters, in which the ascending gas bubbles through the descending liquid in the different stages. Wash oil is used on the lower three stages in conjunction with a small oil regeneration unit, and water on the upper four stages. Originally, this vessel was a washer cooler, but its purpose has been changed from that originally intended.

From the bell washer the gas returns to the ovens through a 24" main, which branches into an 18" main for each of the two batteries and into a 14" main to a balancing gasholder of 100,000 cu. ft. capacity. Askania regulators are incorporated in the oven fuel-gas mains before the mains pass along the oven fronts and into a manifold pipe—from which pipe the separate two inch bore oven-feed pipes rise through isolating cocks to the inclined gas guns. The gas has a calorific value of about 500 btu per cu. ft. and of it there is a small surplus over and above plant requirements which is sold to the Aberdare Works of the Wales Gas Board.

The tar and ammoniacal liquor system consists of storage tanks, circulating tanks and pumps, and is roughly as follows: The tar and

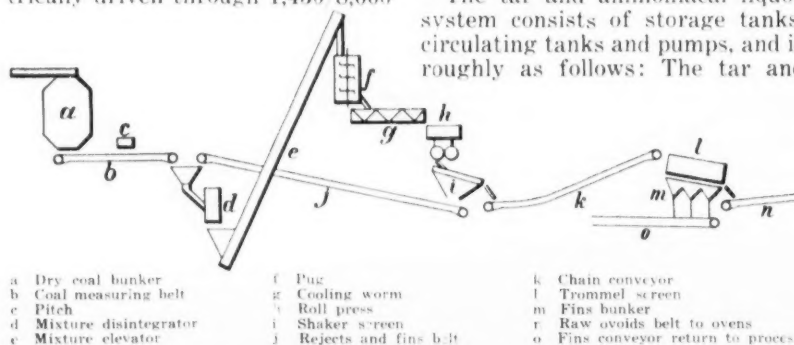


Fig. 4. Flow Diagram of Briquet Plant.

liquor which are trapped from the collecting mains at the catch tank flow by gravity to either (or both) of two separating tanks, each of which is 28' diameter x 11' high. Three centrifugal pumps, each with a capacity of 360 gpm and driven by a 30 hp motor, draw liquor from the tanks and circulate it to the oven collecting mains, one pump operating for each battery of 40 ovens and the remaining pump providing a standby.

The main tar-storage tank is 21' 6" diameter x 20' high, and the quantity of tar made at the plant amounts to about five gallons per ton of the throughput of the ovens. For general tar and liquor services four totally enclosed, Evans pumps are provided each has a capacity of a hundred gallons per minute and is operated by belt from line shafting driven by a motor of 20 hp.

Boiler Plant.

Since the exhausters and pumps are driven electrically, the function of the boilers is to provide superheated steam for the pugs in the briquetting plant, and steam for the heating coils in the tar tanks, etc. For this purpose two Lancashire boilers, each 30' long x 8' diameter and having a capacity of about 6,000 lb. an hour, are provided—one in operation and one as a standby. The boilers are fitted with Green's economizers, Sugden superheaters, and forced draught fans; and each has two gas burners fitted above the firing door. An ash skip hoist and ash bunker are provided to deal with the boiler ashes.

Gas Producers.

It has already been pointed out that the overhead bunkers at the ovens hold only about one oven charge, and that the carbonizing time is merely one of four hours; it will therefore be noted that any interruption exceeding four hours in the supply of raw ovoids to the bunkers means that the production of gas at the ovens will begin to fall off, and that within a very

short time gas will no longer be available for heating the ovens. A standby gas producer plant is consequently kept permanently warm to guard against such an emergency. The plant consists of two Power Gas Corporation 9' diameter mechanical producers — one for each battery of ovens — and each will gasify up to 24 tons of coke daily and is provided with a 20 ton overhead bunker which feeds a

(Continued on Page 23)

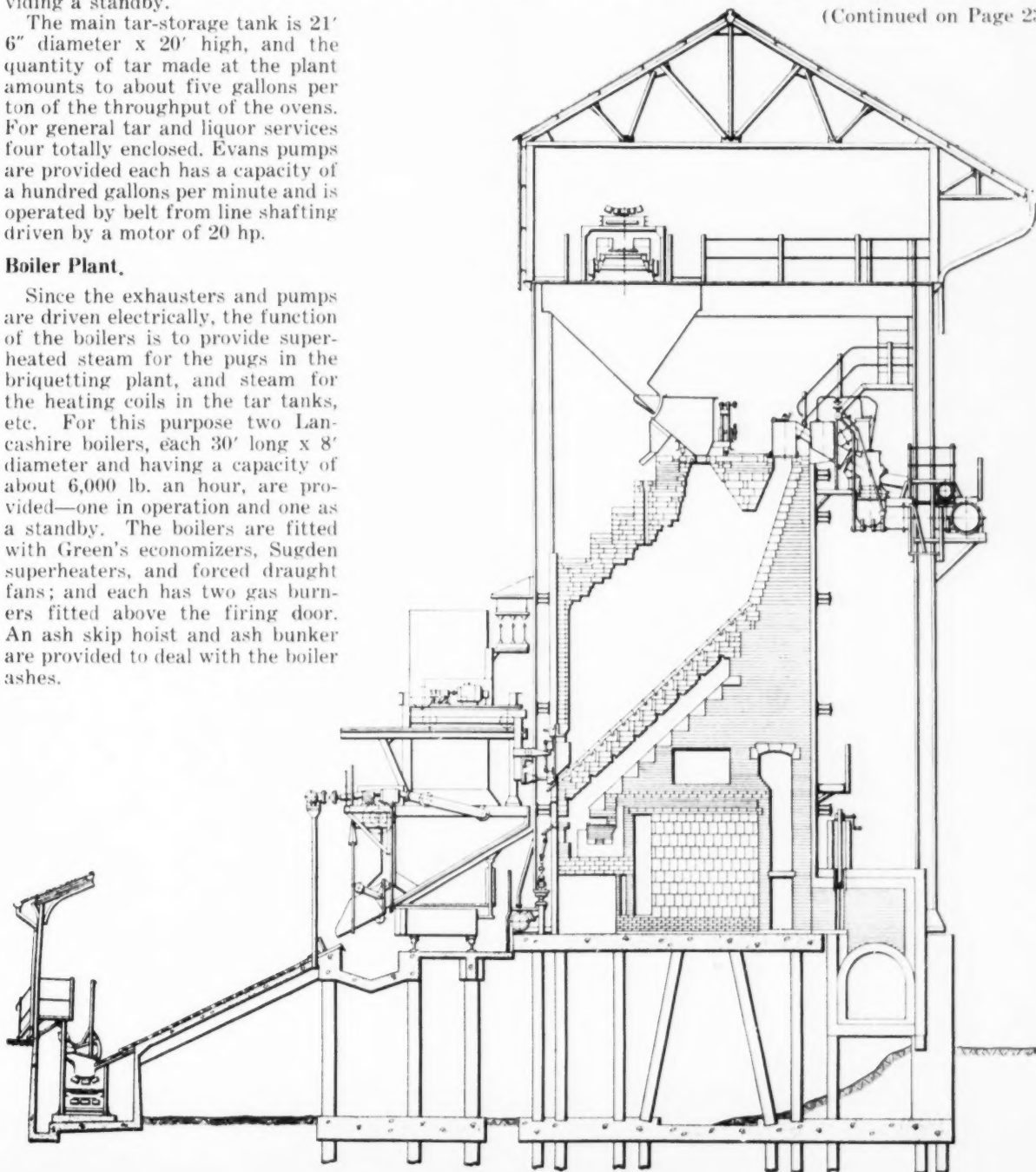


Fig. 5. Cross section through Ovens.



Stripping is done with a Lima Model 1201 shovel.

STRIPPING OPERATION OF THE SHAWVILLE COAL COMPANY



The six inch McCarthy blast hole drill in operation.

● The stripping operation of the Shawville Coal Company lies in Clearfield County, about six miles North of Shawville, Pennsylvania.

A number of seams of coal are strippable in that section of the Central Pennsylvania coal bearing strata. The deposits are limited in most cases, however, because of the extreme erosion of the coal beds. This limited amount of coal plus the low height of the seams makes good roads prohibitive which means that in wet seasons, hauling coal from the mines is difficult.

The limited amount of coal in the higher areas, in most cases, limits the size of the operation and the size of the stripping machinery that



Typical 30 foot highwall, showing overburden and seam of coal.

can be used economically. The Shawville Coal Company is using a Model 1201 Lima shovel with 44 foot boom, 36 foot dipper stick and 2½ yard dipper.

Overburden on this property consists of yellow shale that turns to slate as it deepens and separates in slabs. The first cut generally runs 42 feet wide and most of it is moved

without shooting. The second cut is blast hole drilled with one of the new six inch McCarthy horizontal drills mounted on a truck chassis. This drill makes shot holes on 21 foot centers, 36 feet deep.

The surface of the stripped coal is manually cleaned with shovel and broom before it is loaded out. The loading is done with a Lorain

Model 820 shovel having 26 foot boom, 18 foot dipper stick and 2 yard dipper.

● A machine has been created here that does much of the routine brainwork in testing new Army psychological tests.

Scientists using the "robot psychologist" here at the Army's Personnel Research and Procedures Division would not speculate on the machine's ultimate effect upon Army life. But it may mean future recruits will be happier in the Army because they will be doing the right job.

Basic plans of the robot were drawn up by Department of Defense psychologist Dr. Richard H. Gaylord. Dr. Gaylord's plans were turned over to General Electric engineers who developed and produced the machine.

The robot is highly complex and specialized. In the same category as other electronic "brains" that have "memories," the machine helps psychologists evaluate new tests that have been drawn up to reveal what special abilities each man has.

Extremely simplified, this means that the machine would show the trained psychologist which of four mechanical-ability tests does the best job of revealing a recruit's mechanical ability.

It can do this, however, only after the tests have been given to a group of men who are assumed to have high mechanical ability. Data obtained from the actual testing then are fed into the machine for evaluation.

The machine, through clusters of spots it throws on a tube similar to 16-inch television picture tubes, shows which test best samples the person's trait—or "factor" as the psychologists call it—under study.



The 820 Lorain shovel loading out coal.

ANSWERING THE CALL FOR GREATER OUTPUT

It takes truly modern equipment to keep pace with today's stepped-up demands — and do it at an operating cost which insures fair and consistent profits. This line of Allis Chalmers equipment has been designed and built completely new since the war, with the kind of advanced engineering that delivers big-capacity performance at a minimum of maintenance costs. It is the line that's Designed For Your Job . . . Built To Take It . . . Easy To Operate . . . Easy To Service.

Shock Troops Of Production. Crawler tractors equipped with bulldozers handle countless stripping, excavating and other earth moving jobs. Wide choice of bulldozers—straight or angled, cable or hydraulic — assure the right combination for maximum production on every job . . . enables users to strip overburden previously thought too deep to tackle profitably. Allis-Chalmers offers a choice of four crawler tractors to meet your needs from the 40 hp. HD-5 to the giant HD-20 with torque converter drive and 175 net engine hp.



Flexible Excavators and Loaders. Front-mounted hydraulic shovels for all four models of Allis-Chalmers crawler tractors handle many excavating jobs, load trucks, other hauling units . . . feed hoppers and conveyers. Buckets range from one cubic yard on the HD-5G to four cubic yards on the HD-20G. Special rock buckets and rock forks are also available.





Fast, Self-Hauling Scrapers. On stripping, hauling and dumping jobs, Allis-Chalmers Motor Scrapers move big yardage "on the double." These job-tested, job-proved machines have unusually high horsepower-to-yardage ratios, assuring top-average haul speeds even when loaded and on adverse grades. Their clean, open-top design also permits easy shovel loading. Other features, such as positive, forced ejection, high clearance, hydraulic power steering and simplified servicing add still further to production output. Model TS-200 has a 10 cu. yd. struck and 13 cu. yd. heaped capacity; TS-300 has a 14 cu. yd. struck and 18 cu. yd. heaped capacity.



Road Builders and Maintainers. Low-cost, tandem drive Model D easily handles maintenance as well as many construction jobs. With exclusive ROLL-AWAY moldboard, tubular frame and other high-production features, it gives big grader performance advantages at a fraction of the usual cost. For heavy grading and construction, four diesel powered models are available.

Your Allis-Chalmers dealer invites you to stop in and discuss your job requirements. He will be glad to help you select the right machine for your needs.

Tough, Speedy Hauling Units. Model TR-200 rear-dump Motor Wagon is built to take rock-shock. Double steel floor is reinforced with heavy oak plank. Front and sides are channel ribbed to provide rigidity. Clean interior, high 70-degree tilt plus constant wheel-base insures fast, safe and complete load ejection. Wagon body is interchangeable with TS-200 Scraper Body. Model TW-300 bottom-dump Motor Wagon is interchangeable with TS-300 Scraper Body.



For Big Stripping Jobs. Allis-Chalmers tractors team up with pull-type scrapers to handle big stripping and stockpiling jobs. Your Allis-Chalmers dealer offers a choice of seven models to fit every tractor and every job. Struck capacities range from two to 18 cu. yd.



ALLIS-CHALMERS
TRACTOR DIVISION—MILWAUKEE 1, U.S.A.

ROLL-AWAY is an Allis-Chalmers trademark.



Left: Dick Johnson, Div. Sales Manager, Mine Safety Appliances Co.; Karl Konnerth, Asst. to Pres., Engr. U. S. Steel Corp.; Ed Seamon, Div. Manager, Hillman Coal & Coke Co.; F. E. Williams, Pecks Run Coal Co., Buchannon, W. Va.

SECOND MEETING OF WESTERN PENNSYLVANIA COAL OPERATORS ASSOCIATION

The Need For Adult Education



Left: Fred Welsh, Pro. at the Uniontown Country Club presenting set of gold irons to A. J. Ruffini.

During the ups and downs of the past million years, man has gradually acquired more understanding, more dignity, freedom from fears, greater kindness and a clearer conception of justice.

Changes in our mode of life, resulting from scientific discoveries and their practical applications demand our greater participation in coal mining public affairs.

At this time, when scientific findings and technological developments are high and constantly rising, making our standard of living undreamed of a half century ago, we cannot shirk our duties in furthering the advance

The dearth of authentic information on scientific and technological developments that are continually changing the mining man's life



Second from left: Homer Roae, Tool Steel Gear & Pinnion Co., Bill Shiffbauer and Sandy Grant of the Buckeye Coal Co.



Left: Page Dyer, Dist. Mgr. and Ken Garrity, representative, Sun Oil Co.; Red Sturbutzel, Owner and Bert Teasdale, Jr., both of the Sterbutzel Service Co.



Left: Ward Truxell, Chief Shipper, U. S. Steel Corp.; Gus Werft, Chief Engineer, U. S. Steel Coal Mines; Ed Lee, Hewitt Rubber Co. of Pittsburgh; and A. J. Ruffini, V-Pres. Charge of Operations, North American Coal Corp.



Left: Joe Haverstick and E. C. Gerber, Allis-Chalmers Mfg. Co.; John Dauster, Mine Safety Appliances Co.; Earl Keller, Coca-Cola Bottling Co., Uniontown.



Bill Prosser, Master Mechanic, U. S. Steel Corp.; Jack Schroeder, Reed Schroeder and Bill Kennedy of the Schroeder Brothers.



Left: Walt Koch, United States Rubber Co.; Lawrence Parshall, Cornell Coks Co.; Elliott Williams, Hartley-Rose Co.; Harry Whyel, Bridgeview Coal Co.



J. V. Martier, Bill Cameron of the U. S. Steel Corp.; Kenneth Benson, Pittsburgh Rep., Mining Dept., Ohio Brass Co.; E. J. Carroll, Asst. Supt., Robina Mine.

make it imperative that he be better informed. It is necessary that he be better informed so that his judgments may be more soundly

grounded.

We must have continuous adult education on the nature of man for the best future of man. Such an

education includes the scientific evidence of the unity of the whole human race.

One difficulty in a drive for bet-



Left: H. W. Hawkins, Joy Manufacturing Co.; N. M. Robinson, Union Fire Brick Co.; Henry Mathias, Carpentertown Coal and Coke Co.; Paul McMullen, Freight Rep. Penna R. R. Co.



Left: A. B. Opperman, Technical Rep. DuPont Powder Co.; J. M. Krese and J. N. Hedding of The Republic Steel Corp.; George N. McLellan, Wierton Steel Corp.



C. J. Ryan, Jr., Gen. Purchasing Agent, Richmond Radiator Co.; Chas. F. Eggers, Asst. Mgr., Chas. F. Eggers Co.; Fred Boyd, Plant Eng., Richmond Radiator Co.; R. A. Ryan, West Penn Power Co.



Left: Bob Woodings and Bob Crawford of the Robt. T. Woodings Co.; R. E. McIntyre, Frick and Lindsay Co.; C. C. Gallagher, West Penn Power Co.



Left: Paul Becker, Mine Safety Appliances; R. E. Jones, Jr., Victaulic Co. of America; Robt. Waldman and C. A. Conner, Jr., U. S. Steel Corp.



Left: H. L. Williams, Victoria Coal Co.; A. W. Schieb, West Penn Power Co.; Harold Dawson, Victoria Coal Co.; W. A. MacCalla, West Penn Power Co.

ter education for all is a reluctance to think and plan for days ahead as well as for tomorrow. It would be serious reflection on our intelligence and integrity if we rendered our resources, our social and political environment less favorable to our descendants than they were inherited by our generation.

Latest and best knowledge about mining coal has been passed onto us. We should do no less for those who will follow.

The destiny of mankind depends to a great extent on automation.

Scientific and practical knowledge of automatic coal mining will grow with use and will be enlarged with sharing.

Men working together in a spirit of mutual tolerance and cooperation can achieve miracles.

The past, the present and the future of the coal mining industry are in the hands of the men now controlling it.

Judging from the difficulties in which the coal mining industry is constantly finding itself, the past and present ruling fathers have not performed their duties adequately. The new generation must be properly trained to cope with the conditions that are constantly displacing coal from its throne.

Every cause under the sun has one or more organizations to further its aims. The respect paid the proponents of a good cause for creditable service is extended by their associates to their profession and elevates their status.

We have had for some time Coal Mining Institutes and other such or-

ganizations but none have, to date, comprehended the seriousness of the situation in which the industry finds itself.

Grouping of top level mining and machinery manufacturing men like those assembled at these golf parties offer the very best opportunity to promulgate knowledge so sorely needed in our industry.

This was the second game of the season by the Association. The attendance has not been as good this year as last, but has been made up of a larger percent of top officials, particularly of the larger producers. Mr. A. J. Ruffini, Vice President of the American Coal Corporation, of Cleveland, Ohio, was the man of the hour, by turning in a low golf score and winning a set of gold irons in the raffle.



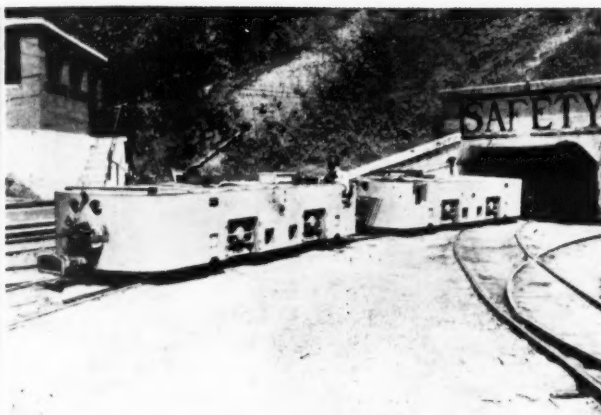
Left: E. J. Cox, Commercial Testing & Heat Treating Co.; Bill Peters, Stimple & Ward Co.; Mark Simpson, California Hardware & Mine Supply Co.



Left: Martin Valeri, Asst. Supt., Buckeye Coal Co.; Bruce Madera, Treasurer, Baton Coal Co.; Leo J. Schulte and Roger Kelly of the Leo J. Schulte Co.



In the dispatcher's office, centrally located along the main haulageway in Beech Bottom Mine of Windsor Power House Coal Company, near Wheeling, West Virginia, Dispatcher Michael transmits orders to locomotives via the MSA Mine-Phone system. Use of this instantaneous voice communication system has prevented traffic tie-ups and costly production delays because it eliminates the necessity for motormen to stop each trip to telephone the dispatcher for instructions.



Beech Bottom's 20-ton tandem locomotive is shown at the entrance to the mine. This is used to bring out 55-car trips which are gathered throughout the three sections being worked. Entire output of the mine—3800 tons per day—is used by Windsor Power Station of Beech Bottom Power Company located near the mine tippie.

Dispatcher-Motorman Communication At The Beech Bottom Mine

To maintain continuity of trip movements and assure maximum safety for personnel in the operation of mine locomotives throughout a modern coal mine, prompt communication between dispatcher and motormen is a vital consideration.

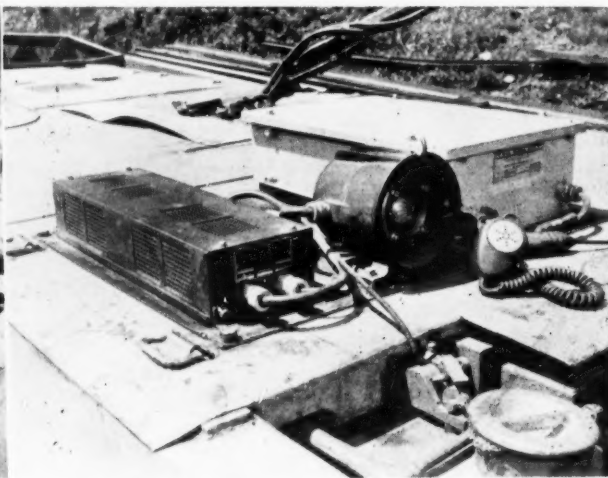
At the Beech Bottom Mine of the Windsor Power House Coal Company, near Wheeling, West Virginia, officials have solved the problem of dispatcher-motormen communication by the installation of a frequency-modulated voice transmission system.

With this system, the dispatcher is in continuous voice contact with six key mine locomotives that operate throughout the mine picking up loaded trips from the three sections currently being worked.

The dispatcher's office is centrally located in the mine. From



Motormen can use the MinePhone to communicate with the dispatcher or other motormen while the locomotives are running at normal speed. Here, Mine Foreman W. R. Hands demonstrates how motormen merely have to press a button on the microphone to open the signal circuit.



Closeup view shows how compactly MinePhone assembly is mounted on a locomotive. Dust-tight box on the right houses transmitting and receiving units, both of which are shock-mounted. Speaker is bolted to top of the locomotive. The microphone hangs on the hook placed atop the speaker housing. Box on left houses resistor unit that reduces DC power from trolley wire to the required voltage for the MinePhone. Entire assembly is arranged for easy maintenance.

this location, the dispatcher keeps the five locomotives, equipped with MSA MinePhones, moving four-ton coal cars from butt entries to a collecting point in the main haulage where a 20-ton tandem locomotive, also equipped with a MinePhone, takes over and delivers the cars to the dumping point outside the mine.

As explained by V. R. Jones, superintendent, and W. R. Hands, mine foreman, use of the MinePhones at Beech Bottom prevents interruptions to production because it no longer is necessary for a motorman to stop each trip and telephone to the dispatcher for orders.

"The difference between having the MinePhone system or not having it," said Mr. Hands, "is just the same as living in a modern home with a telephone or without one."

He pointed out that the dispatcher now can contact any of the six motormen without waiting for them to call in by telephone. Thus, to issue instructions to them, he can instantly get in touch with the mine locomotives.

The MinePhone has prevented costly delays at the working face by the speedy transmission of information about machinery breakdowns. The motormen advise the dispatcher on the MinePhones and repair crews are enroute to the section in a matter of minutes.

This mine is equipped with 500 cars which travel through the main haulageway which is approximately seven miles long. Messages transmitted instantly between dispatcher and all motormen on MinePhone-equipped locomotives have eliminated traffic tie-ups and kept the tracks open for outgoing loaded and incoming empty trips.

Mr. Hands explained that since motormen can hear the dispatcher simultaneously over the speakers on their locomotives, they are aware of the orders given to the others and can report immediately any conditions that may necessitate emergency action. Reports of roof falls, derailments or any other similar situations can be transmitted to the dispatcher. Since the system is, in effect, a "party-line," motormen also can talk to each other via the MinePhones.

Entire output of the Beech Bottom Mine—an average of some 3800 tons per day—is used at the Windsor Power Station of the Beech Bottom Power Company, a short distance from the mine's tippie. Beech Bottom Power Com-

pany is jointly owned by The Ohio Power Company and West Penn Power Company.

The portal of the mine is located some five miles from the tippie where loaded cars are dumped.

All mantrips are loaded at the shaft bottom of the portal and by using the MinePhone system to schedule these trips considerable delay is avoided. The mine employs some 400 men in its underground operations.

Mr. Hands explained that the MinePhone messages are clear and easily understood, even on locomotives operating at their normal speed. The entire system goes into action when any one of the microphones is operated by pressing a button on it and speaking into the microphone.

Little maintenance has been required for the MinePhones since their installation at Beech Bottom, Mr. Hands reported. A dust-tight steel box houses the receiver and transmitter units on the locomotives. Both units are shock-mounted to avoid damage to tubes and parts. The equipment is compactly housed and takes up little space on the locomotive.

Engineered and built by the Union Switch & Signal Company for Mine Safety Appliances Company, Pittsburgh, the MinePhone oper-

ates with power taken directly off the trolley wire. A resistor unit reduces DC power to that required for the MinePhone. As an extra safety precaution, the microphone circuit is isolated from the power circuit to eliminate any possibility of electrical shock while holding the microphone in the hand for operation.

The speaker is housed in a cast aluminum cover with a steel mounting bracket which may be bolted or welded in any convenient location on the locomotive.

ANTHRACITE FINES

(Continued from Page 13)

sealed container holding about six tons of coke and having an electrohydraulic thruster at its base. Two air blowers and gas clearer exhausters are provided and these are driven by vee-ropes from common 35 hp motors. The gas washers are five feet diameter by twenty-nine feet high.

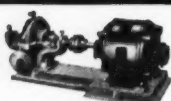
When an oven battery is shut down, cold producer gas is introduced directly into the oven fuel-gas main, the calorific value of this gas being about 130 btu per cu. ft. as against 500 for the oven gas. On the other hand, the quantity of heat required merely to keep the battery warm (as distinct from

(Continued on Page 27)



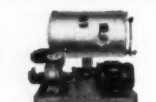
N. A. Swenson, of the Nugget Coal Company, Denver, Colorado, third from left discussing the Caterpillar Diesel engine at the Cleveland Coal Show, with M. E. Fearis and N. M. Nelson, left and R. D. Evans, right, all of the Caterpillar Tractor Co., Peoria, Ill.

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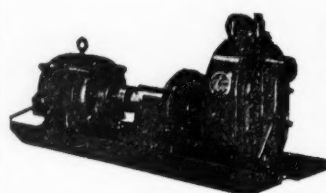
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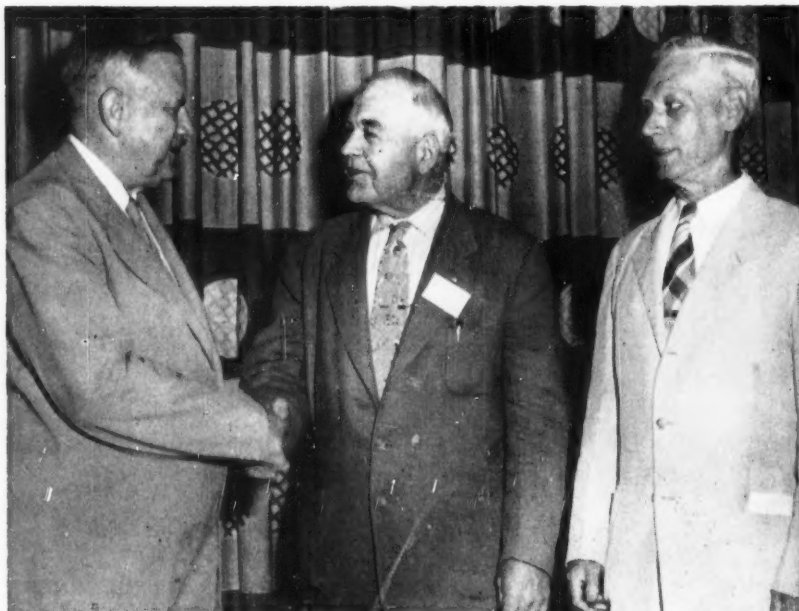
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New president of the Mine Inspectors' Institute of America is George H. Dieke (left), board chairman of Mine Safety Appliances Co., Pittsburgh. He succeeds John M. Malloy (center), Oklahoma City, chief of the Oklahoma Department of Mines. Joining in the congratulations is Joseph Bierer, Charleston, W. Va., chief of the West Virginia Department of Mines. Mr. Dieke was elected at the 43rd annual convention of the Mine Inspectors' Institute of America held recently in Birmingham.



Joe H. Serkovich

Joe H. Serkovich, Advertising Manager for LeTourneau-Westinghouse was judged the outstanding Trade Paper Advertising Manager of the year for inaugurating a new technique in industrial advertising using picture-captions resembling editorial make-up.



(1) Femco Pagephone stations can be installed anywhere in business, commerce or industry.

● Farmers Engineering and Manufacturing Company, specialists in electronic communication and control, has announced a new inter-Communication system known as the Femco Pagephone.

Femco Pagephone systems provide inter-office or inter-plant telephone communication coupled with unique "all-hear" paging features.

The method of installation, and all equipment, has been designed for simplicity and flexibility.

One centrally located amplifier replaces the usual numerous master stations and one common cable serves the entire system. Plug-in junction boxes make possible the addition or deletion of stations without interruption of service.

Equipment consists of a centrally located Pagephone amplifier, junction box, handset stations and a single, inter-connecting cable. Each station consists of a telephone type handset, loud-indicator light which shows whether or not the system is clear for use.

To call another person, a user removes the handset from its hook, presses the handset button to page and speaks the name of the person wanted into the mouthpiece. With a natural voice volume, page calls are clearly audible over every station in the system. The person being called may answer from any



Individual Pagephone stations are attractive, compact units equipped with telephone handsets. (Heavy Duty desk mount shown).

station and then converse privately exactly as if a telephone conversation had been made. A telephone conference held by several persons may be announced and carried on in the same way.

Paging may be done from any station without the use of a central operator. But, in addition, a "super-page" feature permits a central operator, who may be a

receptionist or telephone switchboard operator, to make page calls and announcements while the system is in use, without cutting off handset conversations.

Pagephone equipment is available for standard duty, heavy duty and mill duty. Standard duty equipment for offices includes the familiar telephone type handsets for desks or wall mounts. Heavy duty stations are constructed of heavy gage steel and are recommended for store rooms, power stations and light manufacturing. The mill duty stations, housed in cast iron enclosures, are watertight and dust-tight and meet all the requirements of heavy industry.

Installations can be made anywhere in business or industry, from office to office, office to shop, building to building or floor to floor. Any number of independent systems may be inter-connected together. In general, a single amplifier will handle up to 20 stations. For noisy locations or where additional stations are required, booster amplifiers are available.

Wiring required between stations is one communication cable, $\frac{3}{8}$ " diameter, consisting of two pairs with either one or both pairs shielded. The handset stations are wired in parallel to the common cable.

Other Femco communication products include: Femco Audiophones, wired audio systems for industry; Femco Trolleyphones, the original two-way communication for mine haulage; Femco Cagephones, for deep-shaft mines; and Femco Cranephones, which provide communication between crane cab and floor in heavy industry.

All Femco products, including many special electronic control devices, are engineered and manufactured at Femco's new million-dollar plant at Irwin, Pennsylvania.

Information about the new Femco Pagephone, and other Femco communication systems, may be had by requesting the "Femco Data Kit" available free from manufacturer: Farmers Engineering and Manufacturing Company, Irwin, Pennsylvania.

● A new polar, synthetic rubber-resin adhesive compound for use as a primer in the application of plastic tapes has been introduced by Royston Laboratories, Inc., Blawnox, Pa. The primer, ROYBOND A-36, increases adhesion of plastic tapes to pipe by 200%.

ROYBOND A-36 is plasticized with a special compound which blends with and absorbs the pressure-sensitive adhesive of plastic tapes. The bond between tape and primer improves with time as this plasticizer blends at the interface.

This primer possesses extreme wetting properties and displaces entrapped air and moisture at metal surfaces. It is compatible with asphalts, coal tar and rubber-type synthetics. Compounded to withstand high temperatures, it acts as an effective coal-tar, hot-enamel primer absorbing stresses due to contracture of hot enamel.

Roybond A-36 can be applied by brush, flow coat or regular lacquer-type spray gun. Coverage is approximately 350 sq. ft. per gallon.

Test results of this primer can be found on page two of the A.G.A. (Operating Section) Bulletin DMC-53-5, entitled "Use of Plastic Tape versus Hot Enamels."

Royston Laboratories, Inc., offers a free test sample, together with complete information upon letterhead request.

● Four promotions and the appointment of a new sales administrative assistant in the general sales department of Caterpillar Tractor Co. have been announced by Director of Sales H. H. Howard.



R. J. Loskill

R. J. Loskill, formerly manager of the sales training division has been advanced to the position of manager of sales development division. He is replaced by W. E. McCoy, who has been assistant sales manager in the Central sales division. J. G. Thacker has been promoted from a district representative in the Central sales division

to assistant sales manager in the Eastern sales division, replacing W. F. Jordan, who has left the company to become manager of used machinery sales at Ohio Machinery Co., Caterpillar dealer in Cleveland, Ohio. H. J. Hunkele has advanced from a position as assistant manager of the governmental division to assistant manager of the Central sales division.

Roy McCluskey, formerly a vice president of R. G. LeTourneau, Inc., has joined the general sales department as sales administrative assistant to study product distribution and the development of new dealers.

G. P. Fenn, who has been manager of the sales development division, will apply his extensive general experience with Caterpillar to an expanded program with manufacturer-customers in the petroleum industry.



W. E. McCoy



Roy McCluskey

Loskill joined the company in 1936 and has served in treasury, purchasing and sales departments, having held the positions of district representative and assistant manager of governmental division in the latter department. McCoy, a graduate of the University of Illinois, joined the company in 1939. He has been supervisor of priorities and expediting, an assistant to the vice president, division export credit manager and district representative at Caterpillar.



J. G. Thacker



H. J. Hunkele

Hunkele came to the company in 1947 after 11 years experience in the Diesel engine field. His previous positions have been district

representative, special railroad representative and assistant manager of sales engineering. He was graduated from Lehigh University. Thacker has been a district representative in Central sales division since last September and prior to that was a district representative in Florida. He came to the company in 1949.

McCluskey has worked for three industries in Peoria. He was with U. S. Industrial Alcohol Co. from 1928 to 1933 and the National Distillers Products Corp. from 1933 until he joined LeTourneau in 1941. He was vice president charged with administration of domestic and export sales, advertising, traffic, service and field engineering at LeTourneau.



George Dyke, Jr.

● George E. Dyke, Jr., was elected Vice-President of the Mine Safety Appliances Co. He is a graduate of the Pennsylvania State College and joined the company in 1931.

● A new booklet descriptive of the complete line of Davey industrial aid compressors is announced by Davey Compressor Co., Kent, Ohio.

The 8 page bulletin contains full data on Davey units ranging from 10 to 100 h.p. sizes with displacements of 55 to 540 c.f.m. An interesting feature is a comprehensive table which shows the number of industrial tools of various types which can be operated by each size compressor.

● Mr. Charles B. Baton, partner of Geo. S. Baton and Company, 1100 Union Trust Building, Pittsburgh 19, Pennsylvania, Consulting Engineers, announces that Mr. William E. Edmunds has joined the firm. Mr. Edmunds was formerly with the Valley Camp Coal Company in Wheeling, West Virginia.

ANTHRACITE FINES

(Continued from Page 23)

maintaining it in full operation), is about 25 per cent of the normal quantity, and the gas mains are therefore of about the right size. For one week in the year the ovens are regularly shut down in this manner for the carrying out of intensive repairs — repairs which otherwise cannot properly be carried out to mechanical parts which operate continuously over three shifts a day for seven days a week. In these conditions each gas producer uses from 12 to 15 tons of coke a day.

The labor force at the plant, on a basis of six shifts a week and including all process-men, maintenance staff and fitters, amount to about 170 men in all.

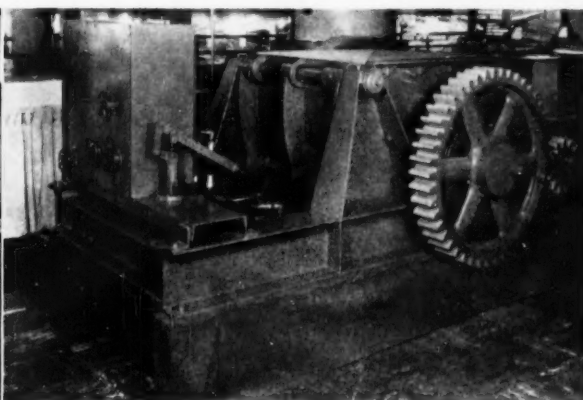
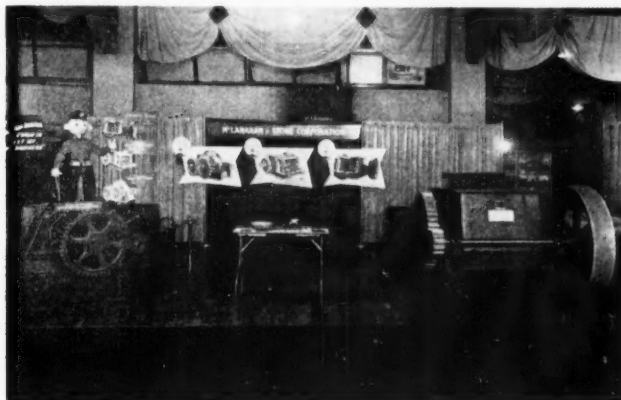
Bibliography.

The N. C. B. Phurnacite Plant at Aberam, Publ: Coke and Gas. London, 1952.

Utilizing Anthracite Fines. Publ: Colliery Engineering. London, January, 1953. The Tothill Press Ltd., Westminster.



George M. Pyle, Stripping Department, Hanna Coal Company and Charles B. Baton, Greensburg-Connellsville Coal Co. both in middle, listen to Harold Graves, President, Ohio Machinery Company, left and Raymond Herr, Beckwith Machinery Company, right, explain the operation of Caterpillar equipment at the Cleveland Coal Show.



McLanahan & Stone Corporation at the Coal Show

The McLanahan & Stone Corporation, pioneers in the development of crushers and allied equipment for the pit, mine and quarry industries since 1835, was well represented in booth 2204 at the recent American Mining Congress Convention.

An unusually heavy demand for their equipment made it impossible to display one of the larger machines that they normally exhibit.

The McLanahan booth was occupied in part by an old reliable item of the Corporation, the Bantam

Buster Single Roll Crusher in 18" x 18" size. The Bantam Buster has proven extremely popular over the years for those operators requiring an efficient, relatively inexpensive crusher for reduction of primary or secondary feed sizes of coal and similar friable materials where a $\frac{3}{4}$ " product or above is desired.

The 18" x 18" is the smallest Bantam of a complete size range up to and including 30" x 60" roll size.

The special feature item in the McLanahan & Stone booth was the new hydraulic control unit current-

ly under development by McLanahan engineers intended for application on various crushing units manufactured by this firm.

The hydraulic control unit displayed will facilitate rapid and precise adjustment for product size variation in addition to offering complete and efficient protection against tramp iron or other foreign, non-crushable materials.

A very keen interest was shown in this pioneer development by McLanahan & Stone Corporation as has always been the case with new, progressive design ideas.

● Salt tablet dispensers, both permanent and throw-away types, and salt tablets and combination tablets are described in a new two-page bulletin from Mine Safety Appliances Company, Pittsburgh, Pa.

One page is devoted to the "1-4-U Throw-Away Salt Tablet Dispenser" and various types of tablets, including salt, salt-and-dextrose combination, entericcoated and impregnated. The other page illustrates and describes the permanent salt tablet dispensers, including bakelite and translucent plastic models.

The tablets, it is explained, are provided in sealed cellophane bags packaged in convenient cardboard containers designed for easy removal without spilling.

Copies of the new bulletin, No. 0403-3, are available on request from Mine Safety Appliances Company, Braddock, Thomas and Meade Streets, Pittsburgh 8, Pa.

● Albert A. Mills, Jr., has joined Ohio Machinery Co. as a Sales Engineer according to a recent an-

nouncement by T. H. Taylor, Vice-President and General Sales Manager.

Mills will be concerned primarily with Caterpillar engine sales in the southern portion of Ohio Machinery's 63-county area and will have headquarters in Columbus.



Albert A. Mills, Jr.

The Engine salesman was born and raised in Jefferson County, Ohio. He has made his home in St. Clairsville in recent years. He first broke into the equipment business as Eastern Ohio representa-

tive of Gibson-Stewart in 1945. From 1948 until recently he was a salesman for Brincker Supply Co. of Dover, Ohio.

Mills, 35, was graduated by Linsley Institute, Wheeling, in 1936 and received his degree in Chemistry from Ohio Wesleyan in 1940. His first position after graduation was with DuPont. He was engaged in the construction and operation of plants manufacturing military high explosives.

Al, his wife and two children, Jane Brodies 9, and Albert III 5, plan to make their home in Columbus in the very near future.

Ohio Machinery Co. is the distributor for Caterpillar, Thew-Lorain, Hyster, Athey, Martin, Eagle and Union Wire Rope.

● Officers of the new LeTourneau-Westinghouse Company are Merle R. Yontz, President; Elmer Isgren, Executive Vice President; Herbert A. May, Vice President; John Schoen, Vice President and General Sales Manager; Warren Wemple, Vice President and Controller; Ed Greiner, Secretary and Treasurer; Winston Sumner, Assistant Controller; Herbert Kastien, Assistant Secretary; and Roy O. Yearick, Assistant Secretary and Assistant Treasurer.



Merle R. Yontz



Elmer Isgren

Mr. Yontz started as an accountant with R. G. LeTourneau, Inc., 18 years ago. Keeping pace with the firm's rapid growth, he advanced to various positions of increasing responsibility. Maintaining an active interest in Peoria civic affairs, he was named "Peoria's Outstanding Young Man in 1941" by Peoria Junior Chamber of Commerce. He



Mr. and Mrs. Thomas Vinoverski of Boyer & Vinoverski Coal Company inspecting a Caterpillar D W-20 wagon at the Cleveland Coal Show.

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was elected to Peoria City Council when the city changed to the council-manager form of government this spring.



Warren Wemple



John Schoen

Mr. Isgren is one of the original "LeTourneau pioneers," having been with Mr. LeTourneau since 1930. He is nationally recognized as a pioneer and leader in the adoption of improved processes in the use of welding in manufacturing operations, and the author of several treatises in this field.

Schoen, former Vice President in Charge of Sales for LaPlant-Choate Co., Cedar Rapids, Iowa, came to LeTourneau April 15 as Vice President and General Sales Manager, and continues in that position with LeTourneau - Westinghouse Company.

Wemple was controller of R. G. LeTourneau, Inc. since 1949. He came to LeTourneau in 1936 as an accountant. He recently was elected a member of Peoria Board of Education.

• The Joy Manufacturing Company reports the availability of a light-weight (23 pounds) cable fault finder for locating open-circuits or low and high resistance shorts of 10,000 ohms or less, for rubber, neophrene, thermo plastic or similar jacketed cables. Manufacturer states that this new unit is ruggedly constructed and extremely simple to operate. Both the self-contained transmitter and receiver (separate units) are powered by standard easy to replace dry cells. Space is provided in the transmitter's carrying case for the receiver so that complete fault finder can be easily carried, as a unit. Those de-

siring more details, including a copy of Joy's latest bulletin, No. F38, on this new product, may obtain it by writing to Dept. CFF-2, c/o Joy Manufacturing Company, Henry W. Oliver Building, Pittsburgh (22) Pa.

• Election of two new vice presidents of mine Safety Appliances Company, world's largest manufacturer of approved safety equipment for all industry, was announced today by J. T. Ryan, Jr., president of the firm.

Those elected are C. M. Donahue, manager of the Mining Department and the International Division, and E. G. Sanner, Manager of Manufacturing.

Mr. Donahue has been associated with the company since 1927. He is a graduate of Pennsylvania State College with a B. S. degree in electromechanical engineering. He was

named manager of the Mining Department in 1946, and the International Division in 1950. He also is a director of Mine Safety Appliances Company of Canada, Ltd.



C. M. Donahue

Mr. Donahue is a past president of the Coal Mining Institute of America, past secretary of the National Mine Rescue Association, chairman of the Safety and Ventilation Subcommittee, Coal Division, of the American Institute of Min-

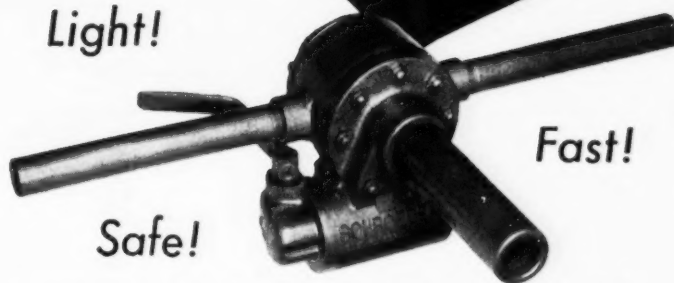
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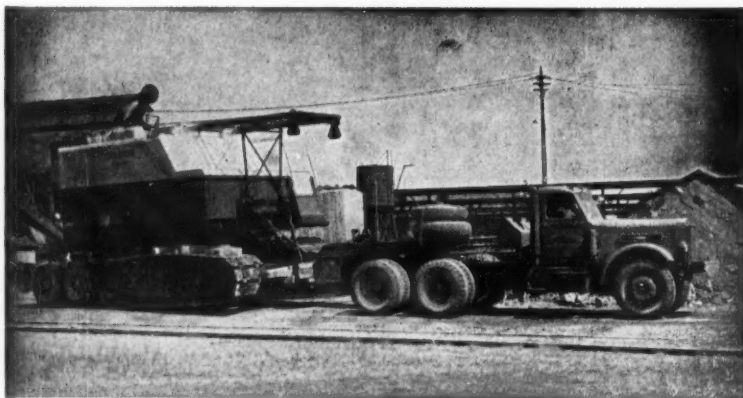
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ing and Metallurgical Engineers, and vice chairman of the Mineral Industries Section, Engineers Society of Western Pennsylvania.

He is a member of the Mine Inspectors' Institute of America, Veterans of Safety, Pittsburgh Coal Mining Institute, West Virginia Coal Mining Institute, Kentucky Mining Institute, Illinois Mining Institute Rocky Mountain Coal Mining Institute, Pittsburgh Chamber of Commerce, Pittsburgh Athletic Association and the Chicago Athletic Association.

Mr. Donahue is the author of several papers on safety in the coal and metal mining industries.

Mr. Sanner has been with Mine Safety Appliances Company since 1920. He attended Duquesne University and the Carnegie Institute of Technology. He was appointed Manager of Manufacturing in 1949.

During World War II, Mr. Sanner was manager of the company's Military Products Department and was one of the firm's executives who received commendations from the Navy for outstanding service in aiding the development of fire fighting and rescue apparatus, oxygen masks for pilots and other equipment.



E. G. Sanner

Mr. Sanner also is vice president and a director of Callery Chemical Company, and MSA subsidiary engaged in development and production of specialized chemicals.

He is a member of the Pittsburgh Chapter, Society for Advancement of Management, the Pittsburgh Athletic Association and the Pittsburgh Chamber of Commerce.

Home addresses:

Mr. Sanner, 411 South Murtland Ave., Pittsburgh 8, Pa.

Mr. Donahue, 7134 Card Lane, Pittsburgh 8, Pa.

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450-W Bucyrus-Erie Diesel Dragline, with 165' boom, 14½ yd. bucket, Cooper-Bessemer diesel engine. 1948 machine.

7-W Bucyrus-Monaghan Electric Dragline, with 150' boom, 7 yd. bucket. Very good condition.

625 Page Electric Walking Dragline, with 150' boom, 9 yd. bucket, Westinghouse electrical equipment.

621-S Page Two-Engine Walking Dragline, with 135' boom, 6 yd. bucket, two Page diesel engines; one 3 cyl. 12½ x 16 and one 3 cyl. 9½ x 12½. Very fine condition.

618 Page Walking Dragline, with 120' boom, 4½ yd. bucket, 4 cyl., 11 x 15 engine.

170-B Bucyrus-Erie Shovel, with 5½ yd. dipper, G. E. electrical equipment, 60 cycles, 2300 volts; machine recently completely overhauled.

120-B Bucyrus-Erie Shovel, with 4 yd. Esco dipper, all electric with 34' boom, 26' stick; including some spare parts. Recently overhauled.

5-W Bucyrus-Erie Dragline, with 120' boom, 5 yd. bucket, D-386 Caterpillar engine.

2100 Lima Dragline, with 120' boom, 5½ yd. bucket, Cooper-Bessemer engine, 25' crawlers, 60" treads. Two years old. Machine has been completely gone over and is in excellent condition.

Type 2400 Lima Dragline, with 130' boom, 5 yd. bucket, Hamilton engine. Improved drum sets installed.

Type 2400 Lima Dragline, with 130' boom, 5 yd. bucket and Caterpillar 397 Super-charged engine. All completely overhauled and rebuilt. Bargain.

4500 Manitowoc Dragline, with 120' boom, 5 yd. Page bucket and Cat. 386 diesel engine, 2½ years old. Engine recently rebuilt. Machine almost like new. Real bargain.

4500 Combination Shovel & Dragline, with 140' boom, 4 yd. Page bucket, 5½ yd. shovel front. New late 1951.

1055 P&H L. C. Combination, with 80' boom, 4 yd. Page bucket, 43' boom, 301 6" stick, 3 yd. dipper, Buda super-charged engine. Three years old.

1201 Lima Standard Shovel, with 18' 11" crawlers, 44" treads, 32' 6" boom, 22' dipper handle, 3½ cu. yd. dipper, 6 cyl., Cummins diesel engine.

1201 Lima Dragline, with 85' boom, 3 yd. bucket, Cummins diesel engine. Worked less than two years.

1201 Lima Combination, with 85' boom, 3 yd. bucket, 3½ yd. standard front, Cummins Type-L engine. Late machine.

3500 Manitowoc Combination, with 80' boom, 2½ yd. Page bucket; 35' boom, 27' stick, 2½ yd. dipper, Buda diesel engine.

3500 Manitowoc Dragline, equipped with 80' boom, 3 buckets, Buda diesel engine, independent boom hoist.

3500 Manitowoc High Lift Shovel, with 2 yd. dipper, Caterpillar D-17000 engine.

54-B Bucyrus-Erie Dragline, with 80' boom, 2½ yd. bucket. New Buda diesel engine installed two years ago. Recently completely rebuilt.

54-B Bucyrus-Erie Highlift Shovel, with Buda diesel engine. Late 1951 machine.

80-D Northwest Shovel, with Murphy diesel engine.

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300 Manitowoc Dragline, with D-13000 Caterpillar engine, 80' boom, 1½ yd. bucket, Kohler light plant.

604 Lima 1½ yd. Chain Crowl Shovel, with Manganese dipper, 24" treads, 14' 7" crawlers, Cummins 6 cyl. engine. Worked less than two years.

604 Lima Dragline-Crane, with 65' boom, 1½ yd. bucket, long, wide crawlers, D-13000 Caterpillar engine, Kohler light plant. Machine exactly three years old. Looks almost like new.

34 Lima Paymaster Combination, Shovel & Backhoe and 35' Crane boom. Caterpillar engine.

34 Lima Paymaster 1 cu. yd. Shovel, G.M.C. diesel engine. Late 1948 machine.

42-T Bucyrus-Erie Well Drills, diesel or full electric powered—with or without jacks. With Caterpillar or International engines.

D-7 and D-8 Caterpillar Tractors, with bulldozers and angledozers.

3500 Manitowoc Shovel Front, Semi-Highlift, 35' boom, 27' stick, 2½ yd. Amsco dipper, with necessary lagging and conversion parts.

802 Standard Shovel Front, 2 yd. P. M. dipper; used nine months.

Parmanco Power Feed Horizontal Drill, with VF-4 motor, complete with augers.

C-74 Laplant Choate Scraper, 9-11 yds. capacity.

520 Garwood Scrapers, 18 cu. yd. struck measure, 24 yds. heaped. Worked only 6 months.

80 Cat. Scraper, 13 yd. struck measure, 18 yd. heaped. Used very little.

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Lake Shore Portable Car unloading Conveyor 16" W x 36' L on rubber with 440V AC—Good as new.

Jones Herringbone Gear Speed—Reducer 75 HP—42 RPM—Used for mine slope belt.

300 KW. West. Rect.—275-v Stationary, Mine Type.

300 G.E. Rect.—275-v on Portable trucks, 2 Joy 6-SC Shuttle Cars, 1949 Model.

300 HP Lidgerwood Mine Hoist, Dia Drum 6' width 3'6" Flange 6" Rope Pull 20,000—GE contractor controls, excellent hoist.

Joy Loaders 8 BU—11 BU—12 BU—14 BU Myers Whaley No. 3 Automat Loaders. Goodman 460 Loaders — Clarkson 24BB Loaders.

Jeffrey Belt Conveyors 26" and 30".

Jeffrey Chain Conveyors 61 am—61 HG.

Goodman G12½ complete — 61 EW.

Westinghouse 500 KW—MG set complete 700 HP Syn. mtr.—Automatic controls.

Steel Mine Cars 42" Ga 4 ton end dump and Rotary dump.

Allis Chalmers 700 HP 700 RPM 2300 Volt (New) Hoist Motor.

Jeff 29 V Cutters and Joy Sul 7AV Cutters. Osmond 1006—2 yd. Shovel—new 1952.

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● Said to be one of the most important advances in scientific production scheduling in 30 years, the basic design for an "electronic scheduler" has been developed by a research group at the University of California at Los Angeles.

It would anticipate manufacturing bottlenecks from an hour to as much as two months before they occur.

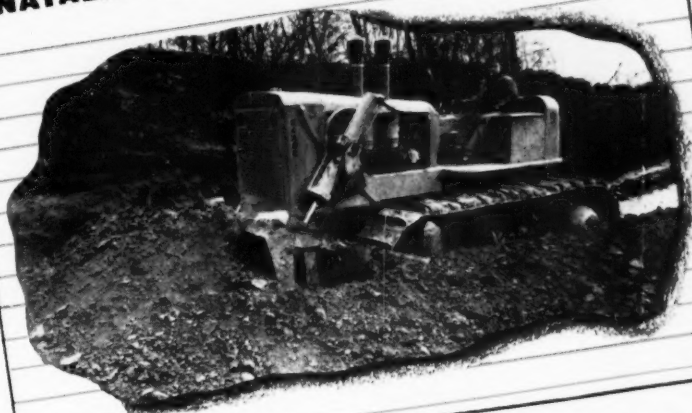
"This conception is a major contribution to the technical know-how necessary for tomorrow's push-button factory," said Dr. Melvin E. Salvendy, director of U. C. L. A.'s Industrial Logistics Research Project, which is financed by the Office of Naval Research. "It promises to be one of the most important advances in scientific production scheduling in 30 years."

Basic design of the "electronic scheduling computer" was worked out by Richard G. Canning, electronics engineer on the project, who developed plans for such a computer after an intensive study with Dr. Salvendy of a 1,000-employee plant in the Los Angeles area.

Using electronic components, most of which are already commercially available, the two men say they can assemble a scheduling system that virtually will eliminate the need for expeditors in factories.

The two men estimate installing such a system in the plant they studied would cost about \$250,000 but add that it would pay for itself in clerical savings alone within three years. Savings from more efficient production, they believe, would amount to from three to ten percent of the factory's annual product, depending on the plant.

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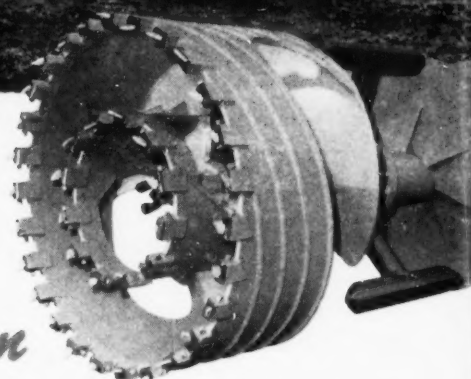
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**Recovers coal up to
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... regardless of overburden



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- 1.—Auger sections racked on frame—ready for transfer to operating position by hydraulically controlled synchronized winches in a matter of seconds.
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- 3.—Entire unit is self-contained including elevating conveyor.
- 4.—Hydraulically-controlled swivelling discharge turret chute permits uniform trimming of trucks.
- 5.—Hydraulic jack legs (with self-leveling pontoons for better floatation) permit drilling up to 208 feet without misalignment . . . also permits drilling vertical overlapping holes for varying seam thickness.

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MODEL 48 SPECIFICATIONS

Length: 48 feet; Weight: Approx. 36 T.
Carries eight 26 foot auger sections.
Required pitwidth: 50 feet
Power: 300 HP Diesel Engine
Hydraulic frame jack lift: 66" or 120"
Auger diameters: 28" to 48"
Possible drilling depth: 208 feet

Consult a Compton Engineer for Details

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